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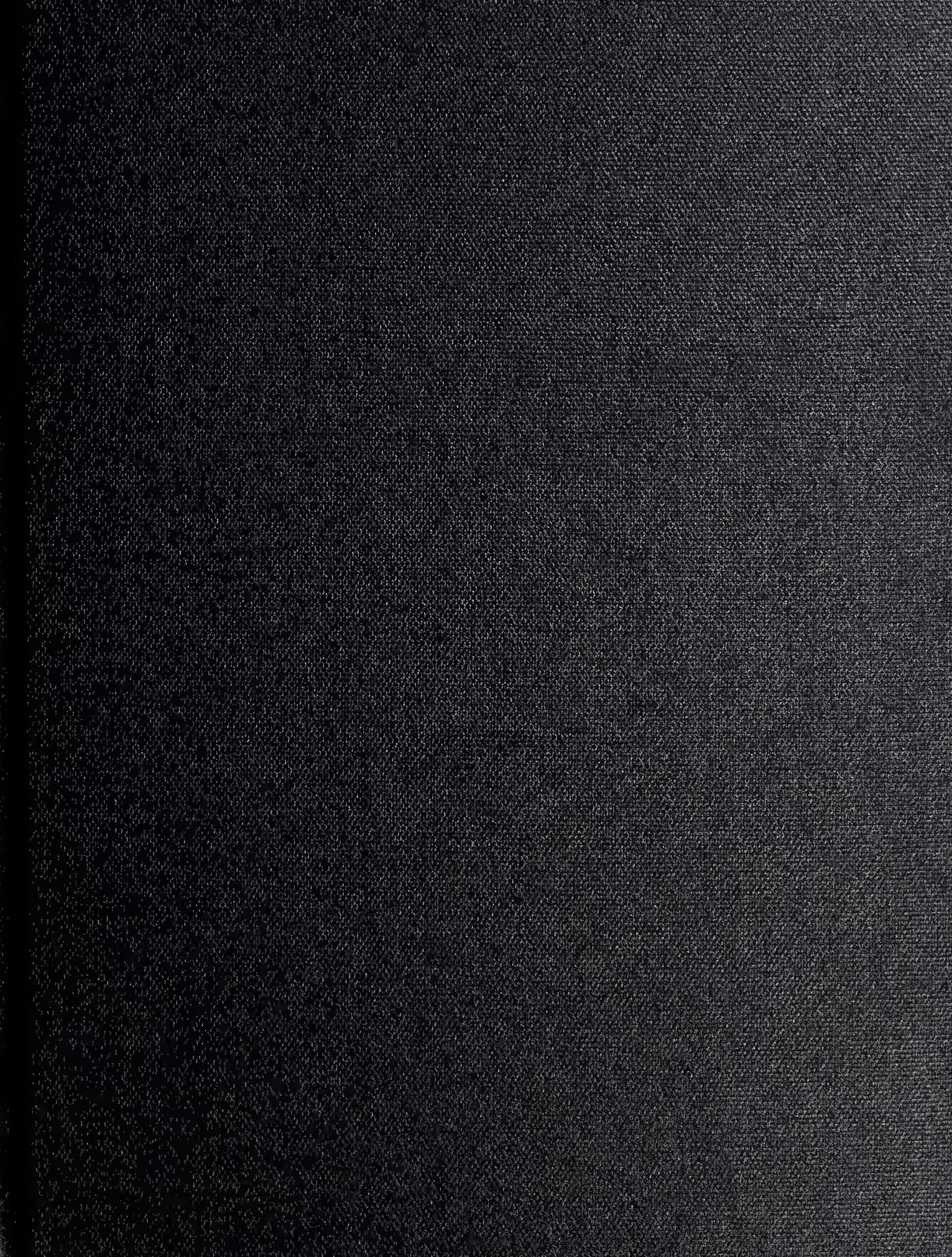
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THESIS

A PROFILE OF SCIENTIST AND ENGINEER TRAINING
CONDUCTED BY THE NAVAL AVIONICS CENTER

by

Michael Lee Gregory

December, 1991

Thesis Advisor: Alice M. Crawford

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This thesis provides an assessment of the training program from the perspective of civilian scientists and engineers working at the Naval Avionics Center (NAC). This assessment can be used in conjunction with other studies to provide NAC management with a basis on which to evaluate its return on investment from training. The author used a questionnaire to survey scientists and engineers in order to reveal training related trends across departments, job categories, paygrade levels, gender, ethnic origin, age, experience at NAC, and marital status. The author concluded that there is a good organizational climate for and support of the training program at NAC, that most of the job needs of scientists and engineers are being met by NAC's training program, and that there are some administrative changes needed to improve the training program. In addition, the kinds of NAC training that are most useful to scientists and engineers are identified. The author presented several recommendations to improve the training program at NAC.

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A Profile of Scientist and Engineer
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Naval Avionics Center

by

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TABLE OF CONTENTS

I. INTRODUCTION

A. OVERVIEW

Chapter I begins with a brief background of the Naval Avionics Center and some insights into the character and makeup of scientists and engineers who work there. This is followed by the general problem statement, the research objective, and the specific investigative questions. The scope of the research is then followed by a chapter summary.

B. BACKGROUND

The Naval Avionics Center (NAC) is a leader in the highly technical field of aviation electronics. NAC supports the avionic needs of the Navy, Marines, Air Force, and Army, as well as international customers. Over the years, the Center has evolved into a multi-faceted technology, development, pilot manufacturing, and acquisition facility. It has an experienced and dedicated work force of over 3400 employees, including more than 1100 scientists and engineers.

Scientists and engineers consider themselves to be professionals in a very broad sense, as shown by the following quotation:

> A profession is man-centered in two ways: (1) a profession demands practitioners who are free and responsible individuals and who, through their personal integrity, dedication, and courage, can be depended upon to establish and maintain their personal standards of performance; (2)

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a profession, no matter how technical the procedures it employs, demands that its practitioners be primarily motivated by service to their fellow men.

A learned profession is a still more demanding occupation. Two further ingredients are required: (1) a learned profession requires years of preparation of the whole man and of his knowledge and skills; (2) a learned profession requires the learning approach throughout life, as a means of fulfilling one's responsibility to one's fellow men, through the ready application of new knowledge. (Brown, 1962)

Most scientists and engineers at NAC earn a degree in science or engineering in their early twenties and then begin working in their chosen profession. Unfortunately, the pace of technological and managerial innovation in today's world soon renders the knowledge they gained during formal schooling obsolete. Because of the rapid pace of engineering, scientific, and managerial development, the continuing education and training of NAC's scientists and engineers is therefore of paramount importance.

The importance NAC management places on the continuing education and training of its scientists and engineers is shown in the following excerpt from the Center's overview statement:

. . . the Center invests in a strong personnel training program designed to foster technical and managerial skills especially attuned to addressing the Navy's airborne electronics issues of today and tomorrow. In order to stay abreast of new philosophies in the systems acquisition process and the rapid advances in avionics technologies, the Center continually invests in the upgrading of its personnel's capabilities. (Naval Avionics Center, 1988)

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As a result of this resource investment strategy, NAC management allocates over ten million dollars annually in its budget for training opportunities for its employees.

C. GENERAL PROBLEM STATEMENT

In light of the extensive investment NAC makes in training its employees yearly, how does NAC know that this amount is appropriate? Is it too much, or too little? What kind of a return on investment should they expect and what are they getting? What criteria should be used to approve training?

While non-systematic approaches to training management may be common in some organizations, they also may be inefficient and ineffective. Clearly, the most desirable situation is one in which managers have a clear understanding of organizational goals, and the tasks and skill mix needed to support those goals, with the result that there is a concrete basis from which the manager can allocate training dollars for those critical skills. The manager must be able to justify money spent on training, and say with some degree of certainty that the training system operates in direct support of the organizational mission.

D. RESEARCH OBJECTIVE

The basic objective of this study is to profile scientist and engineer training at the Naval Avionics Center. This profile will provide a baseline assessment of the current

training system from the perspective of the employee. The assessment can then be used in conjunction with other studies to provide NAC management with a basis on which to evaluate its return on investment from training.

E. SPECIFIC INVESTIGATIVE QUESTIONS

In order to accomplish the research objective, the following investigative questions are addressed:

- Is there a need for NAC management to change the way in which the training program is administered?

- Is the training program given the support it needs to be effective?

- Are the job needs of scientists and engineers being met by NAC's training program?

- What kinds of NAC training are most useful to scientists and engineers?

F. SCOPE OF RESEARCH

This study is limited to scientists and engineers in grades GS-5 through GM-13. The research includes the perceptions of scientists and engineers in departments 200, 400, 700, 800, and 900. The data collected will be analyzed to reveal training related trends across departments, job categories, paygrade levels, gender, ethnic origin, age, experience at NAC, and marital status.

G. SUMMARY

This chapter provided an overview of the Naval Avionics Center and some background into the character and makeup of

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scientists and engineers who work there. The importance NAC management places on training for its employees was discussed in conjunction with the need to analyze training expenditures. Specific research questions were formed to address that problem. This research examines the NAC training system from the perspective of scientists and engineers in the grades GS-5 through GM-13.

Chapter II of this thesis examines literature that is pertinent to the research. It discusses the conceptual framework for the study and the general theoretical issues important to the research results.

II. LITERATURE REVIEW

A. OVERVIEW

This chapter examines literature on training as it applies to the research objective stated in Chapter I. The chapter begins with a discussion of the conceptual framework of training. This is followed by a discussion of training as it relates to the four investigative questions outlined in Chapter I. A summary of key points concludes this chapter.

B. THE CONCEPTUAL FRAMEWORK OF TRAINING

1. The Conceptual Role of Training

In light of the general problem statement outlined in Chapter I, it is important to review NAC's management philosophy with respect to training. To understand the conceptual role of training in NAC's management philosophy, and how that role relates to the four investigative questions of this research, a discussion of the role training plays within organizations is necessary.

Training does play an important role in the success of any organization. To understand the importance of this role we must first understand what training actually is. Training has been defined as:

the formal procedures which a company utilizes to facilitate learning so that the resultant behavior

contributes to the attainment of the company's goals and objectives. (McGehee and Thayer, 1961)

This definition of training actually has four components to it as outlined in the following quotation:

By "formal procedures" we mean that training is a systematic and intentional process, not random or haphazard. The "facilitation of learning" is the key psychological principle that accounts for the persistence of activity - that is, it is a learned skill. "Resultant behavior" means that training is designed to alter behavior (directly or indirectly). People should do things differently after training. Finally, "the attainment of the company's goals and objectives" refers to why training is conducted in the first place: its purpose is to alter people's behavior in a way that will contribute to organizational effectiveness. (Muchinsky, 1990)

It is this last component of the definition of training which is the principle conceptual role training plays in organizations such as the Naval Avionics Center - to contribute to organizational goals and effectiveness. If a training program has no effect on the attainment of organizational goals or effectiveness, then there is little reason for that training program to exist.

Training is a management tool designed to enhance an organization's effectiveness. There are several specific ways in which training can contribute to organizational effectiveness. Some of these are described in the following list:

- Reducing labor costs by decreasing the amount of time it takes to perform the operations involved in producing goods or services

- Reducing the time needed to bring the inexperienced employee to an acceptable level of job proficiency

- Reducing the costs of materials and supplies by reducing losses due to excess waste and the production of defective products

- Reducing the costs of managing personnel activities as reflected in turnover, absenteeism, accidents, grievances, and complaints

- Reducing the costs of efficiently servicing customers by improving the flow of goods or services from the company to the customer   (Muchinsky, 1990)

Another aspect of training is the benefits employees get from it.   Employees would not participate willingly in training unless they received some type of benefit from it. There are many benefits training programs can offer.   The most obvious benefit is the opportunity to learn the job's duties and responsibilities, which gives the employee the chance to be successful.   Other benefits include pay increases, promotion, marketability for higher level jobs, etc.   In defining the conceptual role training has in any organization, management must not only consider how to attain its organizational goals and increase effectiveness, they must also consider how the training program will benefit its employees and how it will meet their individual goals.

In summary, a key to an organization's success is the quality of its employees. Training plays an important role in this success by enhancing the quality of an organization's employees. As a management tool personnel training programs should be one of the organization's top priorities. However, the attitudes and actions of management will to a large extent determine the success of any training program.   The next

section explores the attitudes and actions of management with respect to the conceptual role training has at the Naval Avionics Center.

2. Training's Relationship to NAC's Management Philosophy

As stated in the section above, the principal conceptual role of training is to contribute to organizational goals and effectiveness. NAC's organizational goals are outlined in its "Vision and Value Statements." The following is an excerpt from its "Vision and Value Statements" and reflects NAC's primary organizational goal and its commitment to organizational effectiveness:

> Our vision of the future is . . . The Naval Avionics Center will be recognized as a leader in avionics and manufacturing excellence. . . The center will foster an environment for continuous improvement in all aspects of its operations. (Naval Avionics Center, 1990)

NAC's Vision and Value Statements is a direct reflection of its management philosophy. This management philosophy is called "Total Quality Management/Leadership" and is derived from the teachings of Dr. W. Edwards Deming. Dr. Deming's and NAC's management approach to attain excellence and organizational effectiveness is based on fourteen fundamental teachings or points. Points Six and Thirteen deal specifically with training and education. The role training has in this management philosophy is described in a quotation from Point Six (Institute Training):

> Too often, workers have learned their job from another worker who was never trained properly. They are forced to

follow unintelligible instructions. They can't do their jobs well because no one tells them how to do so. Changing company systems alone will not assure continuing improvement. We must recognize a continuing training and education commitment to all employees. . . training goes a long way towards ensuring that the employee fully understands his total job, the policies of the company, and his customers' and suppliers' needs. (Walton, 1991)

Further amplifying training's role in NAC's management philosophy is Point Thirteen (Institute a Vigorous Program of Education and Retraining). This amplification is described in the following quotation concerning Point Thirteen:

It is not enough to have good people in your organization. They must be continually acquiring the new knowledge and the new skills that are required to deal with new materials and new methods of production. Education and retraining-an investment in people-are required for long-term planning. As productivity improves, fewer people will be needed in some cases. Some jobs may be added, but others may disappear. There will be fewer inspectors, possibly, for example. But quality must not cost jobs. A company, Dr. Deming emphasizes, "must make it clear that no one will lose his job because of improvement in productivity." (Walton, 1986)

Point Thirteen is the primary focus of this research - to profile the training program at the Naval Avionics Center that provides NAC scientists and engineers with the "new knowledge and the new skills that are required to deal with new materials and new methods of production." A discussion of the areas of NAC's training program profiled in this research is given in the next section.

C. PROFILING THE TRAINING PROGRAM OF SCIENTISTS AND ENGINEERS

To record the attitudes and perceptions of scientists and engineers on every conceptual aspect of training at NAC would

have been virtually impossible. Therefore, the profile of
scientist and engineer training is focused on four general
areas of NAC's training program. These areas will best
provide NAC an appropriate baseline assessment of the current
training system from the aspect of analyzing training
expenditures. The four investigative questions of this
research and the general areas of NAC's training program which
they represent, are outlined below:

- Administration - Is there a need for NAC management to
  change the way in which the training program is
  administered?

- Organizational Climate/Support - Is the training program
  given the support it needs to be effective?

- Training Needs Analysis - Are the job needs of scientists
  and engineers being met by NAC's training program?

- Most Useful NAC Training Courses - What kinds of NAC
  training are most useful to scientists and engineers?

1. Administration

Key to a training program's success is how well it is
administered. Administration of the training program entails
such areas as employee familiarization with the training
program and its application/selection process, how responsive
management is to suggestions for course improvement, and
whether the training program has been properly planned and
organized to meet organizational, and to a certain extent,
individual goals. If training programs are properly planned
and organized and the trainees are properly instructed and

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then placed in jobs where they can use their knowledge, then a positive impact on the organization will result.

To derive the greatest benefit from a training program, that program has to be understood by all levels in the organization. The following quotation describes some of the key elements of a properly administered training program which must be understood throughout the organization:

> Careful communication to all employees concerned is necessary. The information given should include why the program is in existence, how people are chosen for training, and what results are expected. It must have the unqualified approval and backing of top management, and they must in turn follow through to see that this same approval is given right down the line. Rumors should not be allowed to start, and the people chosen for training should be told exactly what their contribution is going to be. There should be no implication that they are being chosen because they do not know their jobs, and they should be given sufficient notice as to the starting date for the training. Their superiors should be fully informed as to their progress and the role they will play in the follow-up that is necessary after every training program. (DePhillips, Berliner, & Cribbin, 1960)

Any organization that attempts to accomplish effective employee education with anything less than what is described above should be prepared to cope with failure in their efforts. In today's environment, high labor cost certainly dictates the need for efficient performance. Effective training programs can help an organization attain this goal. The reward to the organization that undertakes such an effort is well worth the cost.

2. Organizational Climate/Support

One of the greatest deterrents to any training program is a lack of organizational support. To be effective, the general climate of an organization should be one that recognizes the benefits of personnel training. An organization's climate regarding training programs can be assessed by looking at areas such as the availability of training, access to training programs, obstacles to participating in training programs, attitudes of personnel from top management to line supervisors to employees undergoing training, and through the extent to which skills learned are allowed to be used on the job.

Organizational attitudes directly affect the training function. The following quotation describes how employee attitudes affect an organization's training program.

> .....attitudes are subjective feelings people have about an activity. They are held by everyone. At a given moment each employee, regardless of level or specialty, likes or does not like training, depending upon his or her personal experience and perceptions. Where there has been no personal involvement in training, feelings can mirror those of the boss, other authority figures, or peers. Friends who have been through a training program return to report on what took place, how things went, the quality of instruction, the personalities of the leaders, the degree of class participation, the adequacy of facilities, and the relevance of the whole thing to personal needs. Listeners are influenced accordingly. A successful program is one in which the returning trainee describes it as "good stuff - I can use it." (Craig, 1976)

As mentioned above, training programs must have the unqualified approval and backing of top management, and they must in turn follow through to see that this same approval is

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given right down the line. Top executives should not just pay lip service to training plans and programs, but they should take an active part in those plans and programs themselves. The following quotation describes some of the effects top management can have on an organization's training program.

> Top management can do a great deal in shaping favorable attitudes in subordinates who are responsible for carrying out training programs and for improving co-operation in all phases of the training program. In this respect, these leaders can select and train subordinates and motivate and stimulate their interest and desire so that a training program is truly co-operative and supported by all echelons. In addition, when management shows interest and actively participates in the training function, then the employees tend to feel that their efforts during the training period will be more readily recognized. This gives the training program greater acceptance, hence making the program have more impact not only on the people exposed to it but also on other employees and supervisors. (DePhillips, Berliner, & Cribbin, 1960)

Although the decision to support a training function is made by top management at NAC, the decision to conduct specific programs generally is made by middle management (heads of divisions, departments, sections, etc.). In a real sense middle managers at the Naval Avionics Center determine how far training will get-the amount of money, personnel, facilities, and other support that will be allocated. Where training is based on a valid need, where it is performance-oriented, and where management has a voice in determining what will be done, how it will be done, and how results will be evaluated, then the organizational attitude has a much greater chance to be supportive of the training program.

Unfortunately, some managers and trainers always see training as "good" on the basis that any program is good for the employees and therefore good for the organization. As a result of such attitudes, time, talent, and money are sometimes invested in programs not related directly to valid needs.

Acceptance is of particular importance in the case of supervisory personnel, since they will have the trainees assigned to them either during or after the training period and the usefulness of the training will be in direct proportion to its acceptance by the line supervision. If "they discredit the program as being unrealistic or impractical, then the employee will soon learn that if he is to get along with his supervisor, he will have to adapt to the supervisor's methods." (DePhillips, Berliner, & Cribben, 1960)

In summary, training programs are expensive and should support valid needs of the organization. However, when the organizational climate is not supportive regardless of a valid need, then the manpower, time, money, facilities, equipment and supplies allocated to this function may be wasted.

The next section discusses the question of what is a valid need of an organization with respect to the training needs of scientists and engineers at the Naval Avionics Center.

3. Training Needs Analysis

Assessing training needs usually involves a three-step process as described below:

- Organizational Analysis - determining where training emphasis can and should be placed within the organization.

- Operations Analysis - determining the content of training in terms of what an employee must do to perform a task, job, or assignment effectively.

- Person Analysis - determining what skills, knowledges, or attitudes an employee must develop to perform the tasks involved in his or her job. (McGehee and Thayer, 1961)

Organizational analysis is the study of an entire organization: its objectives, resources, and the ways in which it allocates resources to attain its goals. Research in this area will not be covered in this thesis since this level of analysis is not concerned with the specific training needs of scientists and engineers.

Operations analysis examines the task or job requirements regardless of the person holding the job. The goal of operations analysis is to identify what an employee must be taught in order to perform the task or job and results in the following information:

- The standards of performance for the task or job

- The identification of what tasks constitute a job

- Determination of how these tasks are to be performed

- Determination of the behavior required of an employee in order to perform the tasks

An operations analysis for scientists and engineers at the Naval Avionics Center is linked inseparably to the General Schedule (GS) position descriptions of the Federal (civil) Service which these professionals are hired for. General Schedule positions are defined by the Office of Personnel Management in terms of occupational information, official position titles, and grade level determination criteria. Title IV of the Classification Act of 1949 and its amendments directed the Civil Service Commission to publish standards for the classification of job positions subject to the Act. Section VI of the Position Classification Standards describes the functional classification for engineers and scientists. Personnel working as engineers and scientists at the Naval Avionics Center fall into these classifications.

Engineers and scientists are further categorized into a "series" which defines a specialized line of work differing in difficulty and responsibility, and therefore, in grade and salary range. Examples of engineers and scientists series that can be found working at NAC are mechanical, electrical, and industrial engineers (800 series), mathematicians and computer scientists (1500 series) and physicists (1300 series). Each individual working in a series has a "grade" associated with the series. A grade is a zone of difficulty and responsibility of work. An example of a series and grade combination is GS-0850-12. This person is an electrical engineer working at the 12 level of difficulty, responsibility

and compensation. Engineers and scientists at NAC typically start out at the grade of 5 or 7 and can progress to the 15 level.

A "position description" describes the current duties and responsibilities assigned or delegated to the engineer or scientist in a specified organizational unit. The position description at the Naval Avionics Center will vary depending on the department, branch, series and grade level held. How well an individual performs the duties associated with his or her position description determines their performance evaluation for a given period of time.

Two factors are used to determine the degree of difficulty and complexity, and the level of responsibility for engineering and scientific postions covered by the grade-level criteria established in the Position-Classification Standards. They are nature of assignment and level of responsibility. What these two factors stand for is described below.

Nature of assignment deals with the following:

- Nature, variety, and purpose of duties performed.

- Scope and difficulty of the assignments.

- Knowledge required and the degree to which experienced judgment is required in evaluating alternative courses of action or diagnosing problems or failures.

- The extent to which the engineer must define the problem.

- Originality required.

Level of responsibility is concerned with:

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- Extent and depth of review given to completed work and guidance received while the work is in progress.

- Nature and purpose of personal contacts.

- Impact of findings, recommendations, and advice.

- Authority to commit the activity or agency to a course of action.

- Availability and pertinence of guidelines and precedents. (U.S. Office of Personnel Management, 1976)

An example of how nature of assignment and level of responsibility differ with respect to the grade held is the comparison of a GS-7 to a GS-12 engineer or scientist. The GS-7 receives assignments of limited scope and difficulty. They make direct application of varied rules and procedures to their assignments. Relations are clear and there is little question of the appropriate process to follow. On the other hand, the GS-12 applies deep and diversified knowledge to highly difficult assignments, in a subject matter or functional area for which they have technical responsibility. Precedents are sometimes absent or obscure. GS-12 engineers or scientists are required to fully comprehend the relationships between their assigned and related branches.

The final step of the training needs analysis process, person analysis, is directed toward learning whether the individual employee needs training and what training he or she needs. The term training for scientists and engineers in this instance is synonomous with the broader term "continuing education." Continuing education of scientists and engineers

consists of two major elements as described in the following quotation:

> education..."that which imparts the kinds of information that the engineer integrates into the working knowledge he applies as needed to solve whatever problem is at hand." Training on the other hand "imparts skills that the engineer needs to perform specific tasks." (National Research Council Committee on the Education and Utilization of the Engineer, 1985)

As mentioned in Chapter I, the training and education needs of scientists and engineers are unique. The rapid pace of technological and managerial innovation in today's world soon renders the knowledge scientists and engineers gained during formal schooling obsolete. The significance of the need for continuing education for scientists and engineers at NAC is summed up in the following quotation:

> When engineers complete their pre-employment education and accept employment--whether in industry, academia, or other sectors--their need for education does not end. In many ways it is just beginning. The focus and direction of an engineer's career may change from time to time, and education is needed to prepare for each new direction. Even if the direction of a career changes very little, its focus must shift because the technology is continually changing. (National Research Council Committee on the Education and Utilization of the Engineer, 1985)

So this final step with respect to scientists and engineers is not so much whether they need training, because a continuing education is necessary for professionals such as these, but what training he or she needs.

In the context of determining what training a scientist or engineer needs, the training profile at NAC focused on the results of training and whether scientists and engineers

believed the training have met their job needs. In general, the research explored areas such as whether training courses had improved their job capabilities, increased their job satisfaction/responsibilities, and enhanced their promotion or marketability potential. Other areas looked at included assessing what percentage of training applied to the job is NAC-sponsored formal training, the degree to which training supports NAC's organizational strategies, and whether NAC-sponsored training is connected to their career development and performance appraisal.

In summary, NAC makes an extensive investment in training for its employees yearly. If this training is not meeting the job needs of its scientists and engineers then the investment is a poor one. If it is meeting the job needs of its scientists and engineers then the investment is a worthy one. If however, NAC has to cut back on its allocation of training funds, then where should these cuts take place? In this instance, it would be helpful for NAC management if it knew which types/kinds of training courses have been most useful for scientists and engineers. The next section discusses the profile of some of the training program courses which are available to NAC scientists and engineers.

4. Most Useful Training Courses

As mentioned earlier, training programs are a key element in an organization's ability to achieve its goals and

increase effectiveness. The Naval Avionics Center uses a variety of training programs to meet this objective. These programs range from a highly technical skill-oriented training program to a non-technical job and special training program. In addition, NAC also employs supervisory and management development programs. Which of these training programs are most useful and beneficial to scientists and engineers working at NAC? The scientist and engineer training profile research attempts to answer this question.

As mentioned earlier, the pace of technological advancement in today's world soon renders the knowledge scientists and engineers gained during formal schooling obsolete. Therefore, for the Naval Avionics Center to be a leader in avionics and manufacturing excellence it must provide its scientists and engineers with continuing education on the latest technological innovations in its industry. NAC provides this continuing education through a variety of sources. These sources include a satellite hook-up program (National Technical University - (NTU)), contractor and professional association supplied technical courses and seminars, and a program to attend local colleges and universities.

There are other training needs of scientists and engineers at NAC which are non-technical in nature. Some of these include orientation training, writing and public speaking programs, and time management courses. This type of training

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is conducted at NAC through "in-house" programs as well as through contractors, local colleges/universities and correspondence programs.

Any organization must have good management for it to be successful. The Naval Avionics Center is no exception. Because of this, NAC invests heavily in Management Development Programs for selected scientists and engineers. These training programs include a well-defined core of management courses for its managers as well as separate courses in Total Quality Management (TQM).

In summary, for NAC to be a leader in avionics and manufacturing excellence it must have good management as well as have technically proficient scientists and engineers. With an assessment of its management, technical and non-technical training programs, NAC management can better determine how to best allocate training dollars to meet the critical skill needs of its workforce.

D. SUMMARY

This chapter discussed the conceptual framework of training, to include the role training plays within organizations such as the Naval Avionics Center and its relationship to NAC's management philosophy. This was followed by a discussion of training with respect to the four general areas of the scientist and engineer training profile research.

Chapter III of this thesis examines the methodology that is used to answer the research questions outlined in Chapter I.

III. METHODOLOGY

A. OVERVIEW

This chapter describes the methodology used to accomplish the research objectives and answer the research questions addressed in Chapter I of this thesis. The following areas are discussed:

- The population from which the data were collected
- The data collection plan
- The survey instrument used to collect the data
- The statistical tests used to analyze the data

The description of the research methodology is then followed by a chapter summary.

B. POPULATION

The population of interest in this research consists of engineers and scientists in the paygrades of GS-05 (entry level) through GM-13 (first level manager). The Naval Avionics Center's training program is focused primarily on this group of professionals. Therefore, the observations and opinions of this population are key to an accurate assessment of the efficiency and effectiveness of the training program.

Almost all of the engineers and scientists who work at NAC are assigned to Departments 200 (Manufacturing Technology), 400 (Product Integrity Assurance), 700 (Technical and

Operations Support), 800 (Systems and Technology) and 900 (Engineering). NAC provided a list of 1,137 engineers and scientists assigned to these departments who met the paygrade requirement. Figure 1 shows the total population of engineers and scientists within the paygrades GS-05 through GM-13.

TOTAL POPULATION
GS-05 THROUGH GM-13

ENGR 91%
1030

SCIET 9%
107

Figure 1

Engineers make up 91% of the total population. Their distribution among the five departments is shown in Figure 2.

ENGINEER POPULATION
BY DEPARTMENT

DEPT 700 6%
58

DEPT 400 17%
175

DEPT 200 15%
152

DEPT 800 31%
322

DEPT 900 31%
323
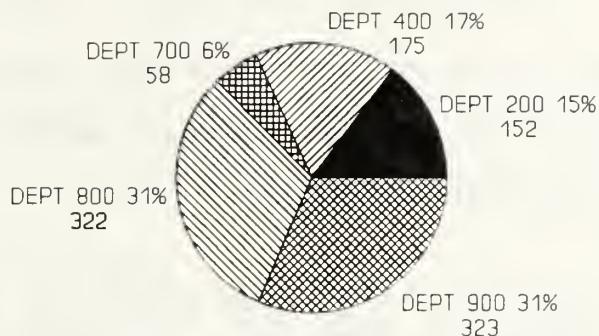
Figure 2

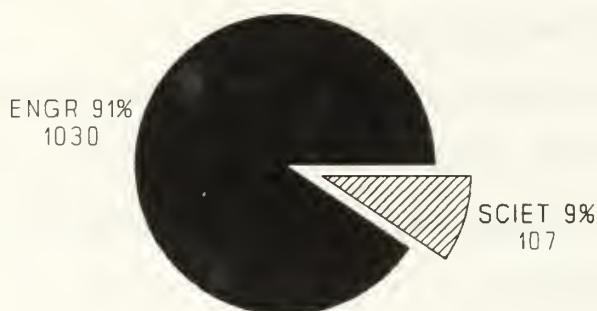Scientists make up only 9% of the total population. Their distribution among the five departments is shown in Figure 3.

SCIENTIST POPULATION
BY DEPARTMENT

DEPT 400 16%
17

DEPT 700 40%
43

DEPT 200 7%
7

DEPT 900 8%
9

DEPT 800 29%
31
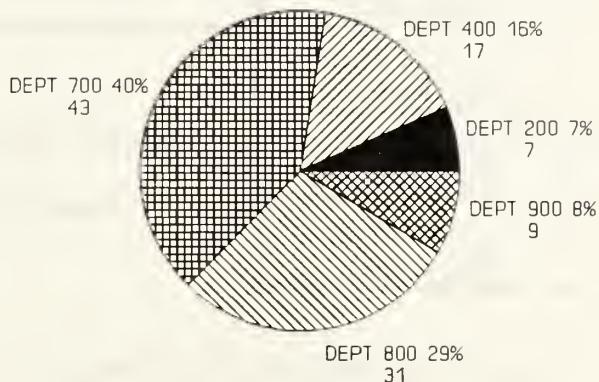
Figure 3

The total population is comprised of thirteen separate job specialties/job series numbers. Eight of these job series numbers comprise the engineer community. The remaining five job series numbers make up the scientist community. Table 1 shows the thirteen job series numbers paired with the job specialty they represent.

TABLE 1.--ENGINEER AND SCIENTIST JOB SERIES NUMBERS

Engineers		Scientists	
Job Series #	Specialty	Job Series #	Specialty
0801	General Engineer	1310	Physicist
0806	Materials Engineer	1320	Chemist
0830	Mechanical Engineer	1520	Mathematician
0850	Electrical Engineer	1529	Statistician
0854	Safety Engineer	1550	Computer Scientist
0855	Electronics Engineer		
0893	Chemical Engineer		
0896	Industrial Engineer		

In order to properly stratify the sample of engineers and scientists for a survey, engineers and scientists were further divided into job series number/specialty and by grade. The

distribution of engineer job series numbers by department is shown in Figure 4.

ENGINEER JOB SERIES NUMBER BY DEPARTMENT

% OF ENGINEER WORKFORCE

	0801	0806	0830	0850	0854	0855	0893	0896	TOTAL
TOTAL	9	25	121	4	16	750	10	95	1030
DEPT 200	0	0	12	0	1	58	6	75	152
DEPT 400	0	5	18	0	0	144	2	6	175
DEPT 700	42	20	7	4	5	5	2	11	58
DEPT 800	2	0	32	0	0	286	0	2	322
DEPT 900	3	0	52	0	10	257	0	1	323

■ DEPT 900	▨ DEPT 800	▤ DEPT 700
▧ DEPT 400	▩ DEPT 200	
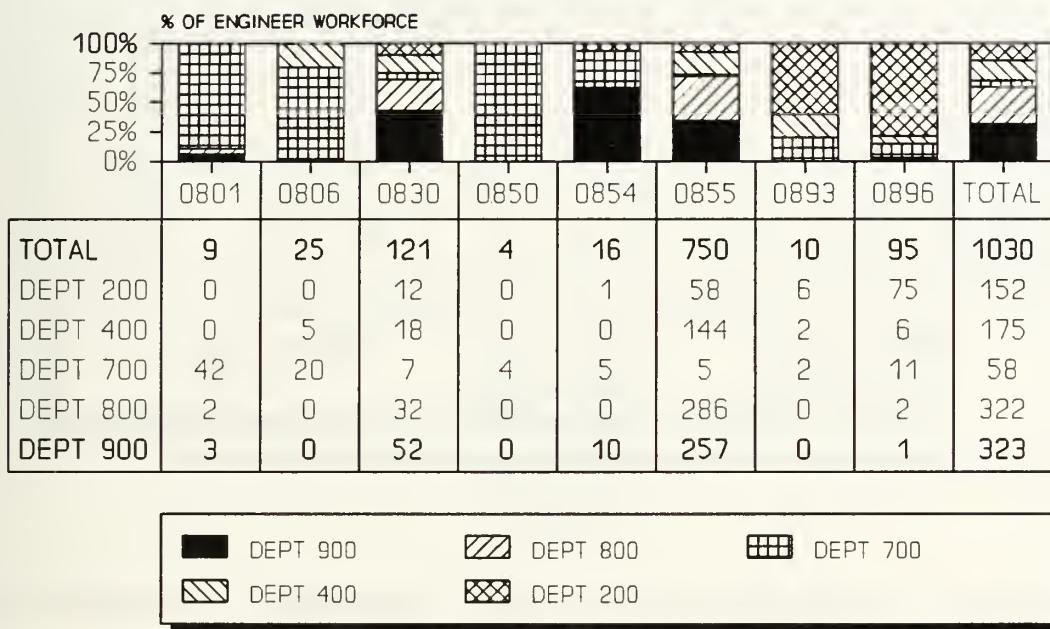
Figure 4

Figure 5 shows the distribution of scientists' job series numbers by department.

SCIENTIST JOB SERIES NUMBER BY DEPARTMENT

% OF SCIENTIST WORKFORCE

	1310	1320	1520	1529	1550	TOTAL
TOTAL	6	7	5	8	81	107
DEPT 200	0	0	0	0	7	7
DEPT 400	2	1	1	8	5	17
DEPT 700	0	6	0	0	37	43
DEPT 800	4	0	2	0	25	31
DEPT 900	0	0	2	0	7	9

Legend: DEPT 900, DEPT 800, DEPT 700, DEPT 400, DEPT 200
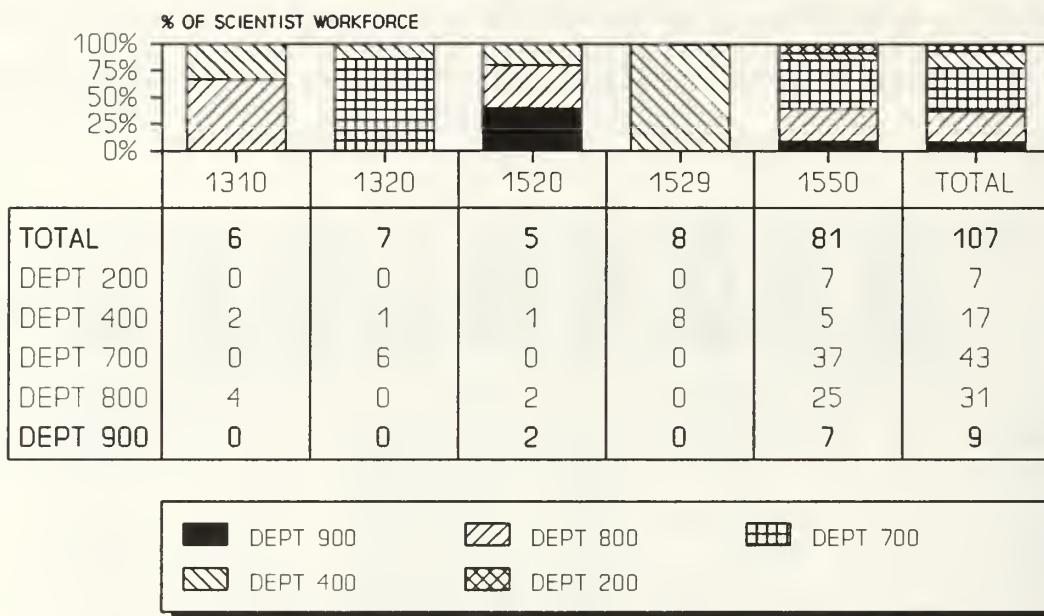
Figure 5

Figure 6 displays the engineer community by grade per department.

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ENGINEER GRADE RATINGS
BY DEPARTMENT

% OF ENGINEERS BY GRADE

	GS-05	GS-07	GS-09	GS-11	GS-12	GM-13	TOTAL
TOTAL	18	54	50	281	485	142	1030
DEPT 200	6	17	9	57	44	19	152
DEPT 400	3	8	8	28	107	21	175
DEPT 700	3	5	4	19	17	10	58
DEPT 800	1	8	12	90	161	50	322
DEPT 900	5	16	17	87	156	42	323

■ DEPT 900   ▨ DEPT 800   ▦ DEPT 700   ▧ DEPT 400   ▩ DEPT 200
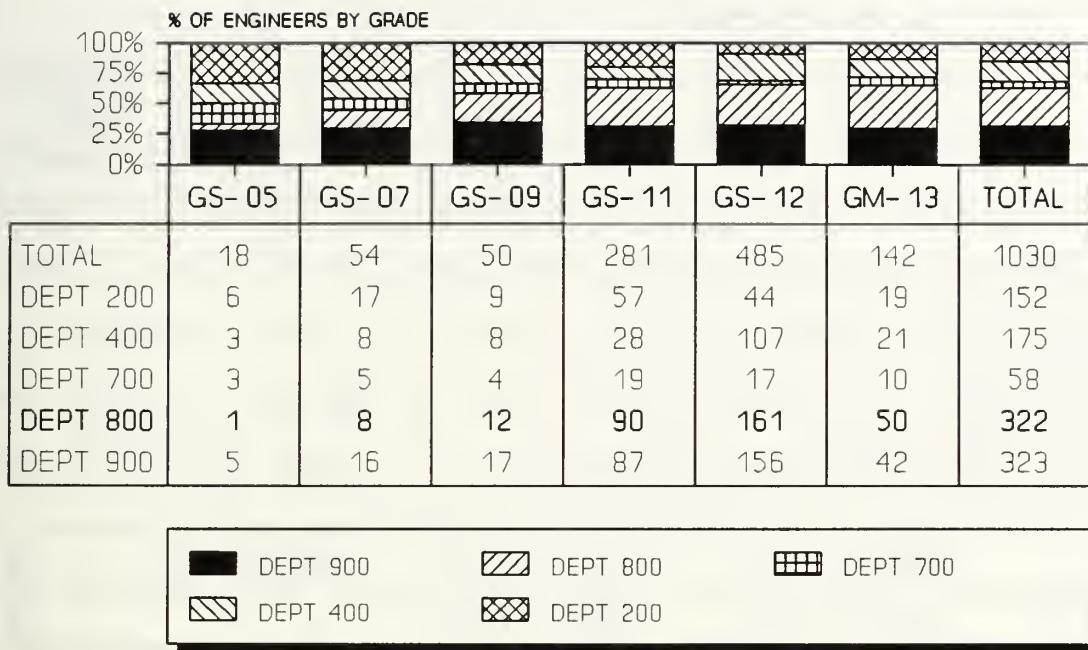
Figure 6

Figure 7 shows the scientist community by grade per department.

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SCIENTIST GRADE RATINGS BY DEPARTMENT

% OF SCIENTISTS BY GRADE

	GS-05	GS-07	GS-09	GS-11	GS-12	GM-13	TOTAL
TOTAL	2	12	4	30	45	14	107
DEPT 200	0	1	0	4	2	0	7
DEPT 400	0	1	1	3	6	6	17
DEPT 700	2	7	1	9	20	4	43
DEPT 800	0	3	2	11	13	2	31
DEPT 900	0	0	0	3	4	2	9

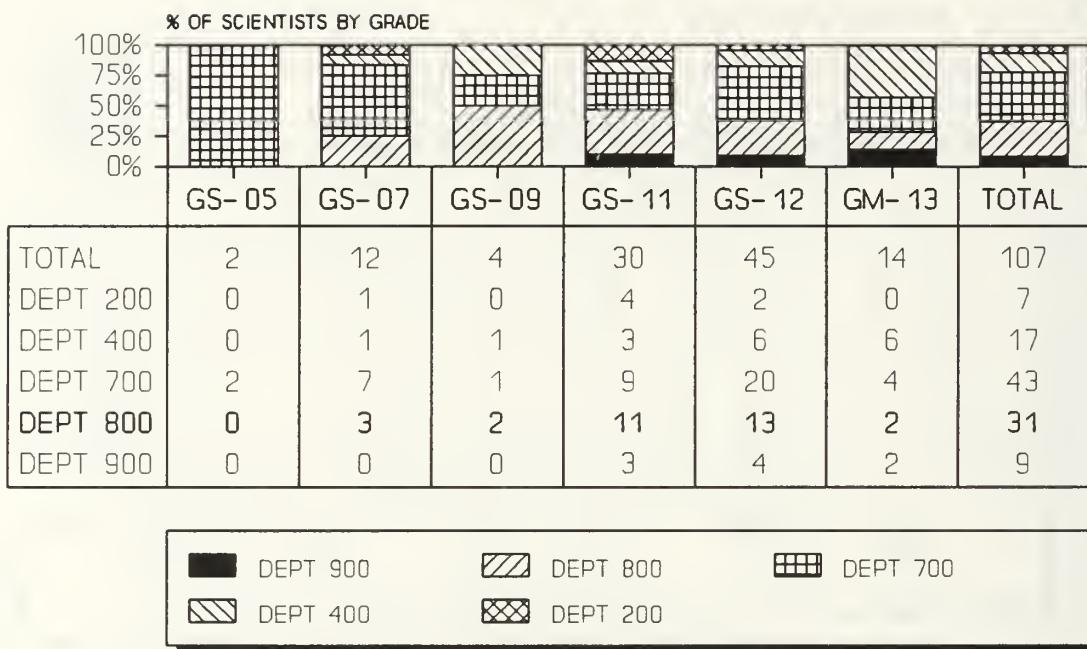Legend: DEPT 900, DEPT 800, DEPT 700, DEPT 400, DEPT 200

Figure 7

C.   DATA COLLECTION PLAN

A sample survey research strategy was used to collect information from the population of interest to answer the research questions. To determine differences in opinions for different classes within the population of interest, the sample was stratified by job, department, and grade rating. To ensure a 90% confidence interval for representativeness of the sample, the number of scientists and engineers required to be surveyed was determined to be 149 engineers and at least 30

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scientists. A stratified random sampling of engineers and scientists was generated from the list of 1,137 engineers and scientists provided by NAC.

Department 200 was scheduled to participate during the survey but did not. However, the overwhelming support and response from the other departments provided the participation needed to maintain at least a 90% confidence interval and stratification of various groups among those departments.

To ensure greater quality control and response, the survey was conducted on-site at NAC. The survey was administered over a two-day period in a conference room provided by NAC. The average time respondents took to complete the survey was approximately 45 minutes. The survey was completely confidential. No identifying marks were requested or used, and to ensure confidentiality, the respondents provided survey data to the NPS researcher only. This survey data was then brought back to NPS for analysis.

D. SURVEY INSTRUMENT

A questionnaire was used to collect data to answer the research questions. The questionnaire was custom designed for NAC. Interviews were conducted by the NPS research team with engineers from several departments and of different grade ratings to determine training related topics, issues and concerns about the NAC training program. This information was then used to construct the questionnaire which was used in the

survey and which is included as a part of this thesis as Appendix A.

The questionnaire consists of a combination of closed and open-ended questions. The scales used to measure the level of the variables in the closed questions were of three types: nominal, ordinal, and ratio. In all questions requiring ordinal scaled answers, the questionnaire used a five point Likert type scale. The five point Likert scale was used because of ease and consistency, and the absence of any requirement for finer measurement in the responses.

The open-ended questions allowed the respondents to put into their own words their perceptions about various subjects. The text of their Section V comments is included in this thesis as Appendix B.

The questionnaire included a cover letter signed by Professors Stephen Mehay and Alice Crawford, head and primary researchers from the Department of Administrative Sciences, Naval Postgraduate School. The cover letter provided some general information about the survey and its main purpose.

The questionnaire is divided into five sections. The sections cover the following areas:

- Section I (Demographics)
- Section II (Administration of the Training Program)
- Section III (Support for the Training Program)
- Section IV (Results Obtained from Training)
- Section V (Course Content Evaluation)

Section V is further divided into seven course content areas. They are:

- Part A (Total Quality Management Courses)
- Part B (National Technical University Courses)
- Part C (Time Management Courses)
- Part D (Technical Courses)
- Part E (Management Training Courses)
- Part F (Other Training Courses Not Previously Covered)
- Part G (Overall Evaluation of NAC's Training Program)

E. DATA ANALYSIS

The computer program used to analyze the data from the survey is a <u>Statistical Software (SAS)</u> developed by the SAS Institute. (SAS Institute, 1985) To use this statistical software, the Central Limit Theorem was assumed to apply. The Central Limit Theorem states that for sample sizes greater than 30, the data is assumed to come from a normal population. (Schlotzhauer and Littell, 1987)

The frequency of responses to each survey question was calculated. Percentages were used to display survey respondent demographic data and to show opinions gathered about training program survey questions.

The mean response to questions using ordinal, interval and ratio scales was also calculated to show the average distribution of values.

F. SUMMARY

This chapter described the methodology used to accomplish the thesis work. The population surveyed included engineers and scientists within the paygrades GS-05 through GM-13 who were assigned to departments 400, 700, 800 and 900. Department 200 was asked to participate but did not. The data collection plan called for a sample survey research strategy using a questionnaire as the survey instrument. The data analysis methods included frequencies and means of the survey data.

Chapter IV of this thesis provides the results and analysis of the survey data. Chapter V is the conclusions and recommendations derived from the analysis of the data.

IV. RESULTS AND ANALYSIS

A. OVERVIEW

This chapter presents the statistics for the data collected by the survey questionnaire and an analysis of the data with respect to the four specific investigative questions stated in Chapter I.

The chapter begins by presenting the statistics showing the frequency of response to survey questions. In addition, where applicable, the mean responses are indicated. This is followed by a Presentation of Findings section in which the statistical results are analyzed and discussed. The chapter is concluded with a summary of the information presented within.

B. STATISTICAL RESULTS

1. Demographics

This section profiles several important demographic characteristics of the sample population as derived from Section I of the questionnaire. Figures 8 through 26 show the frequency of response and/or mean response for these demographic variables.

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a. Gender Distribution

Figure 8 shows the overall gender distribution for the sample population. In the overall sample population, 77% of the respondents are male.
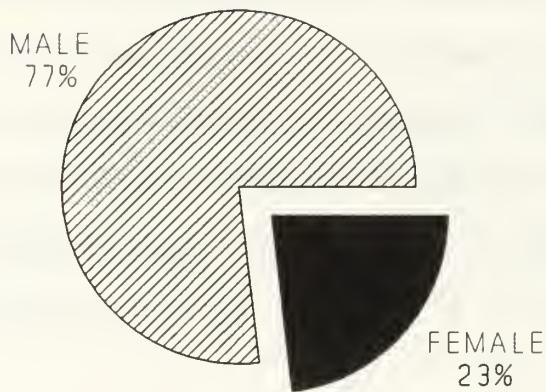
GENDER DISTRIBUTION
N = 147

MALE
77%

FEMALE
23%

Figure 8

b. Ethnic Origin Distribution

Figure 9 shows the ethnic origin of the sample population. The white ethnic origin is the largest group and comprises 81% of the sample population. The next largest group is of Asian ethnic origin and is 9% of the sample population. Respondents of Black or Hispanic ethnic origin are evenly split and comprise the remaining 10% of the sample population.

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ETHNIC ORIGIN DISTRIBUTION
N = 147

WHITE
81%

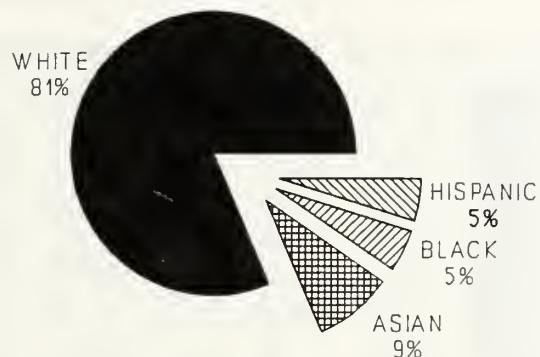HISPANIC
5%

BLACK
5%

ASIAN
9%

Figure 9

c. *Marital Status Distribution*

Figure 10 shows the marital status of the sample population. Approximately two out of every three respondents are married.

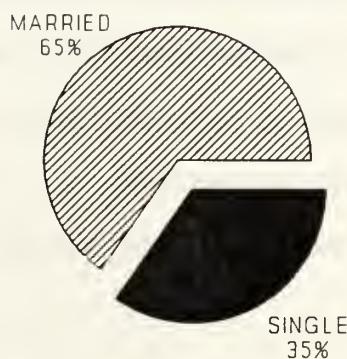MARITAL STATUS DISTRIBUTION
N = 147

MARRIED
65%

SINGLE
35%

Figure 10

d. *Job Category Distribution*

Figure 11 shows the job category of the sample population. In the overall sample population, 82% of the respondents are from the engineer community. The remaining 18% are scientists.

JOB CATEGORY DISTRIBUTION
N = 147

ENGINEERS
82%

SCIENTISTS
18%

Figure 11

e. *Job Series Number Distribution*

Figure 12 shows the sample engineer population by job series number by department. The stratification of the total population has the engineer job series numbers of the sample population roughly proportional to that of the total population. The major difference is in the 0896 job series. With Department 200 not participating, 0896 engineers are under-represented.

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ENGINEER JOB SERIES NUMBER BY DEPARTMENT

% OF SAMPLE POPULATION

	0801	0806	0830	0850	0854	0855	0893	0896	TOTAL
TOTAL	3	10	19	3	3	79	1	2	120
DEPT 900	0	2	5	1	0	27	0	0	35
DEPT 800	0	1	4	1	1	30	0	0	37
DEPT 700	2	6	8	1	2	10	0	2	31
DEPT 400	1	1	2	0	0	12	1	0	17

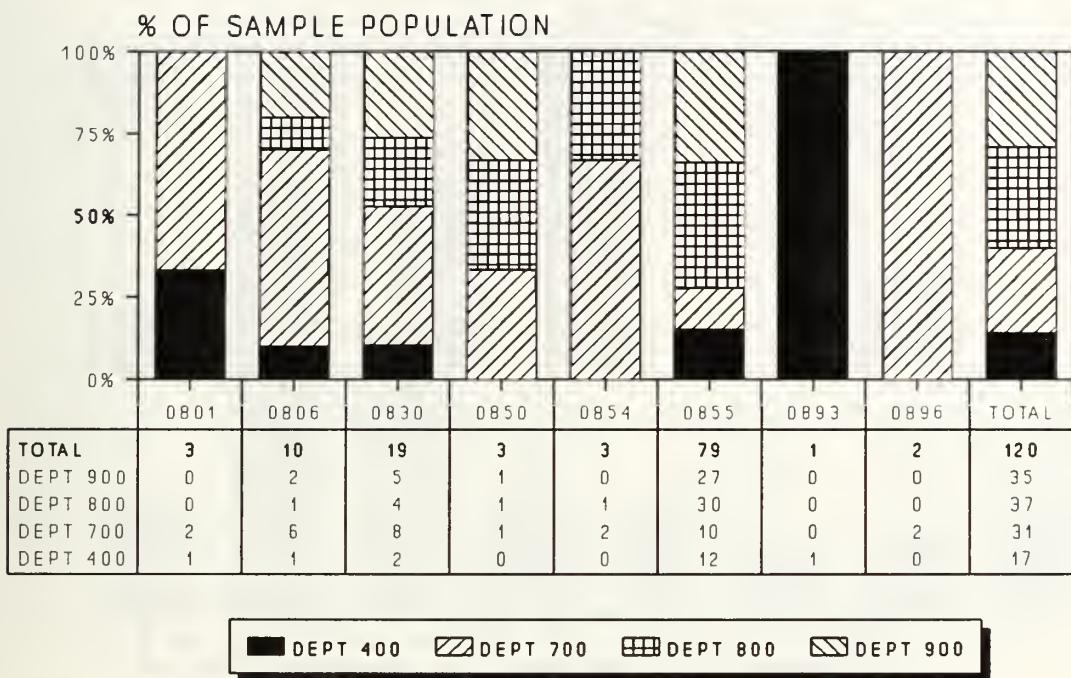Legend: ■ DEPT 400   ▨ DEPT 700   ▦ DEPT 800   ◫ DEPT 900

Figure 12

Figure 13 shows the sample scientist population by job series number by department. The sample scientist population is roughly proportional to the total population due to stratification of the scientist community by department.

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SCIENTIST JOB SERIES NUMBER
BY DEPARTMENT

% OF SAMPLE POPULATION

	1310	1320	1520	1529	1550	TOTAL
TOTAL	3	1	1	3	18	26
DEPT 900	0	0	0	0	1	1
DEPT 800	1	0	0	0	4	5
DEPT 700	1	1	0	1	12	15
DEPT 400	1	0	1	2	1	5

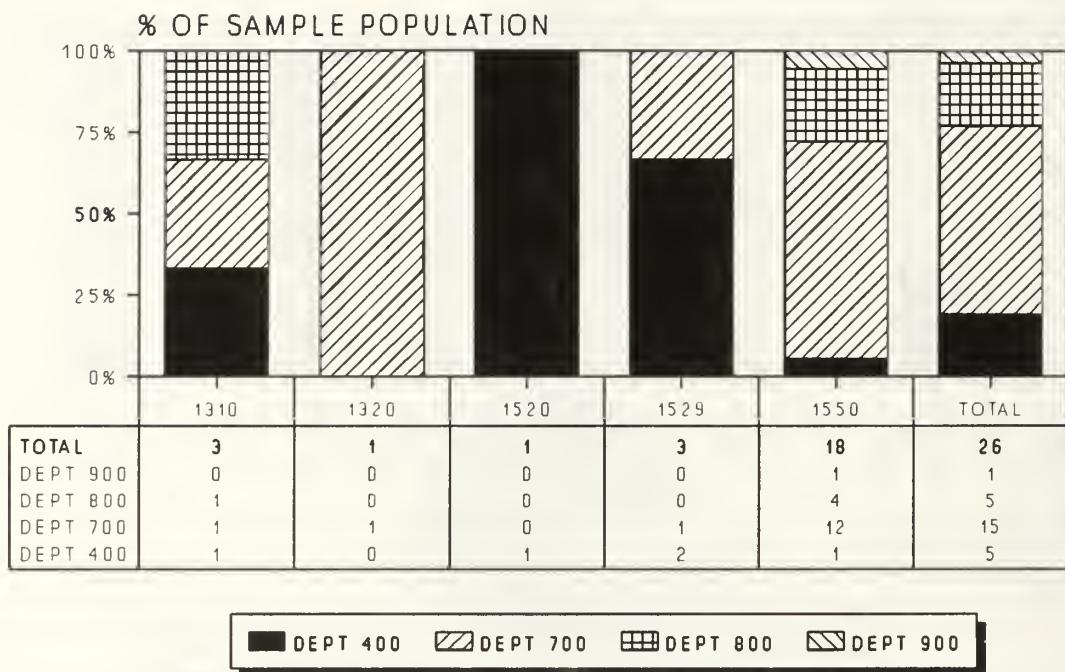■ DEPT 400   ▨ DEPT 700   ▦ DEPT 800   ◧ DEPT 900

Figure 13

f. Age Group Distribution

Figure 14 shows the age group distribution of the sample population. Over half of the respondents are between the age of 26 and 35. The remainder are fairly well spread out among the other six age groups.

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AGE DISTRIBUTION
N = 147

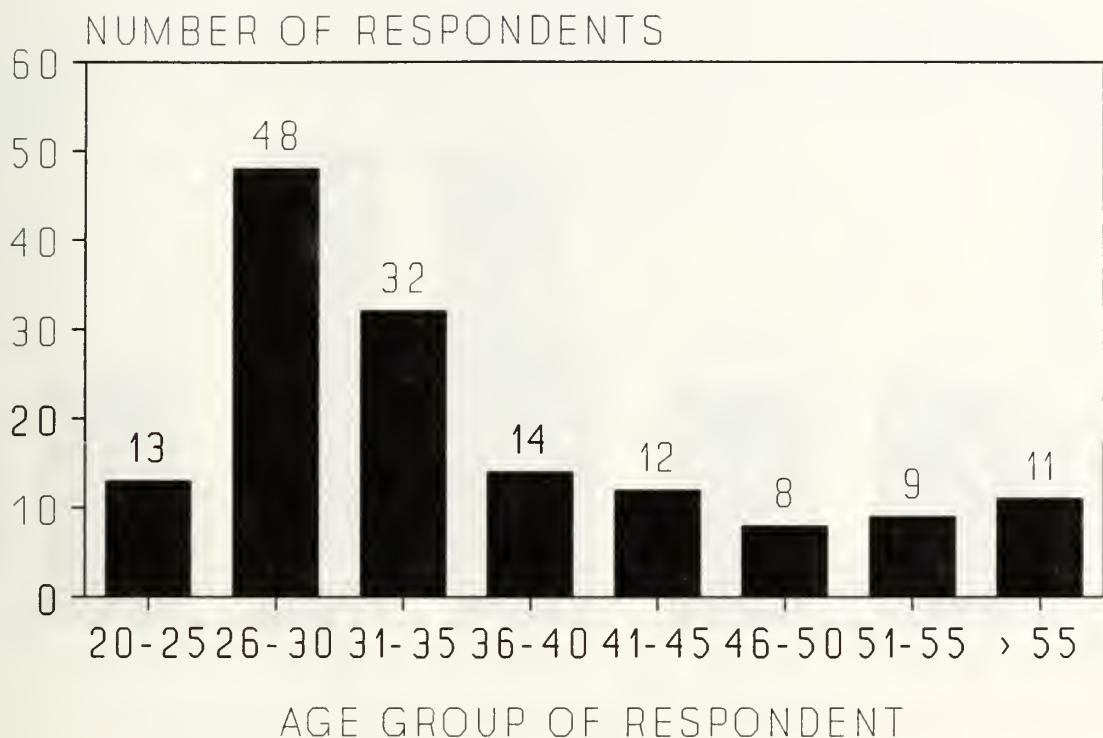NUMBER OF RESPONDENTS

AGE GROUP OF RESPONDENT

Figure 14

Figure 15 shows the average age group by department. The average for all departments falls between age group 3 (31 - 35) and age group 4 (36 - 40). Department 800 has the oldest sample population and Department 900 the youngest.

AVERAGE AGE GROUP
BY DEPARTMENT

AGE GROUP CATEGORIES
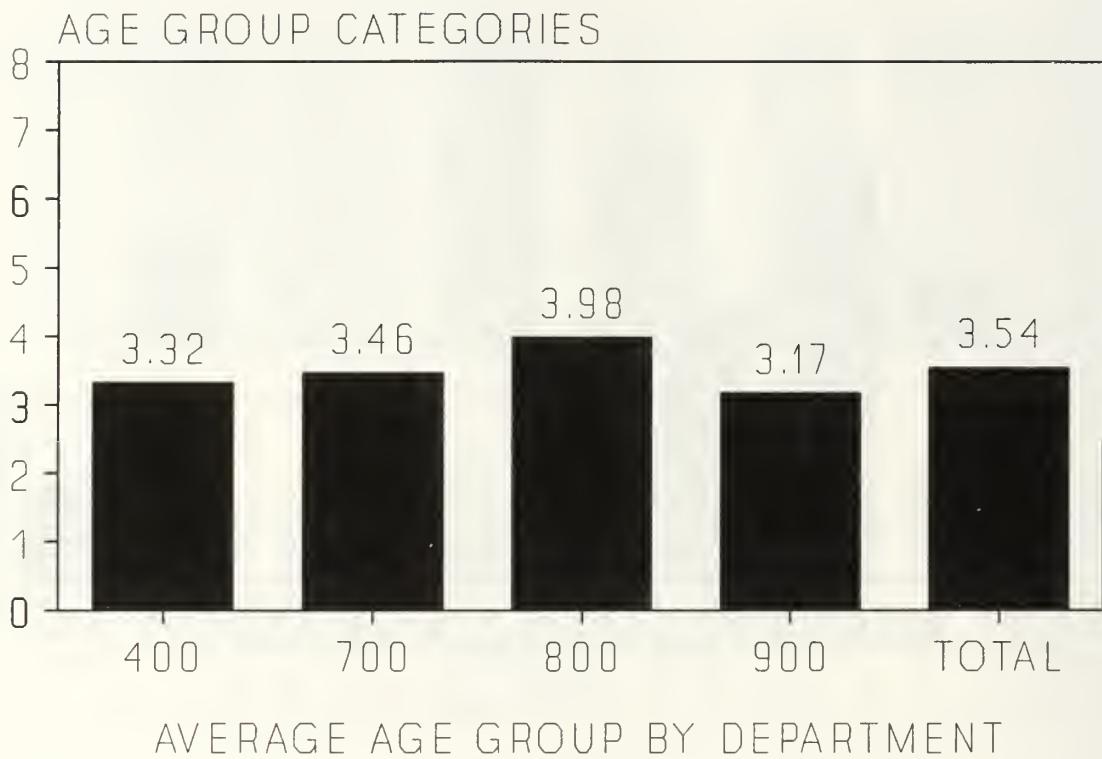
AVERAGE AGE GROUP BY DEPARTMENT

Figure 15

g. NAC Experience Distribution

Figure 16 shows how many years the sample population has worked at NAC. Over 50% have between 1 and 10 years of experience at NAC. Only 8% have worked at NAC between 11 and 20 years. Thirteen percent have worked at NAC for over 20 years.

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NAC EXPERIENCE
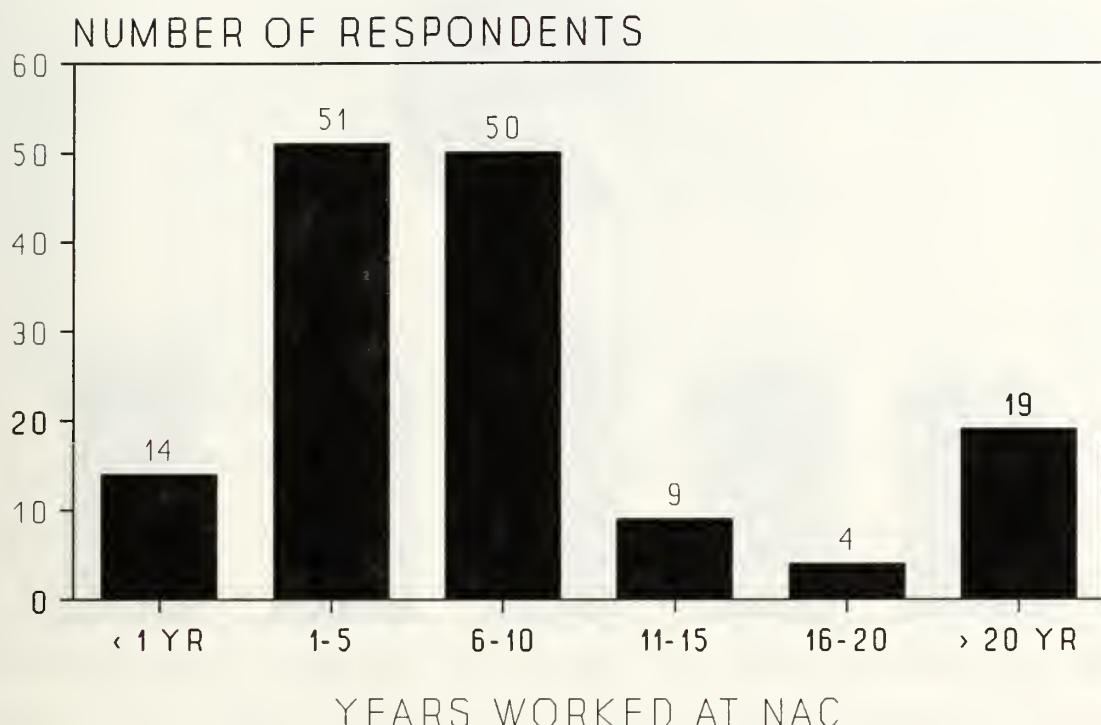## N = 147

NUMBER OF RESPONDENTS

Figure 16

Figure 17 shows the average NAC experience by department. Department 800 has the most experienced workforce of the sample population averaging between category 3 (6 - 10 years) and category 4 (11 - 15 years). The other departments average between category 2 (1 - 5 years) and category 3. Department 400 has the least experienced workforce in the sample population.
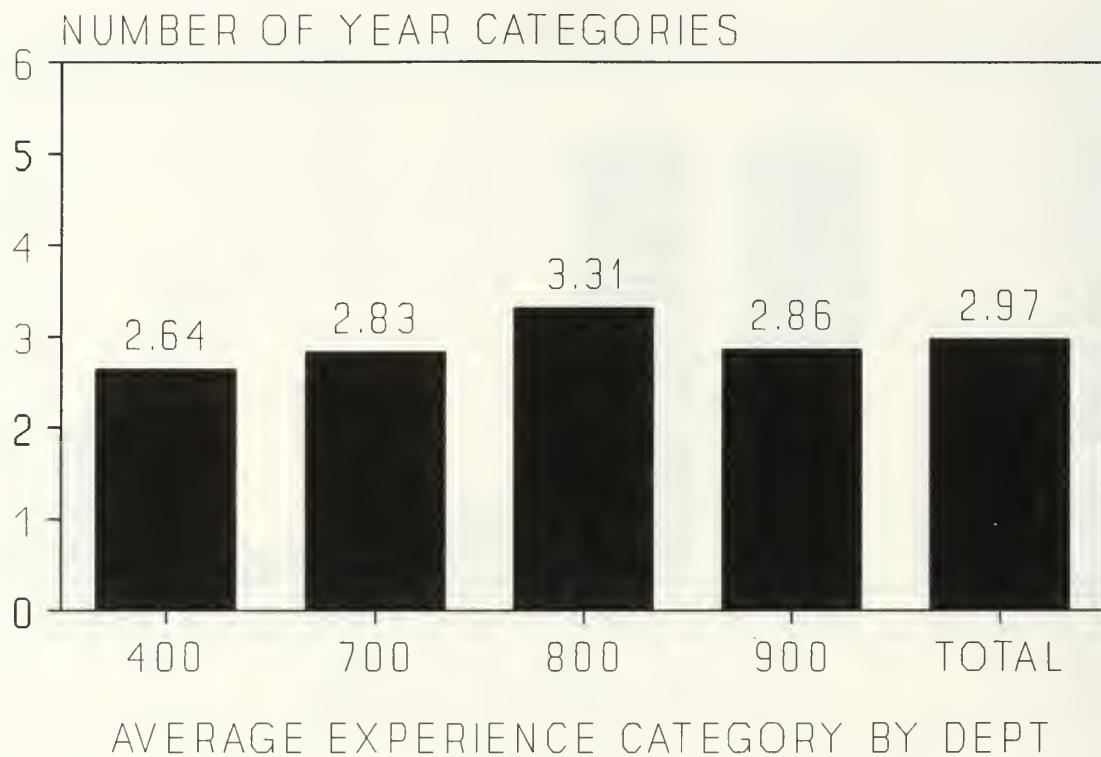
AVERAGE NAC EXPERIENCE BY DEPARTMENT

Figure 17

h. *Educational Attainment Distribution*

Figure 18 shows the educational attainment distribution for the sample population. The majority of the sample population (88%) had Bachelor degrees, ten percent had Master's degrees and two percent had received their Doctorate degree.
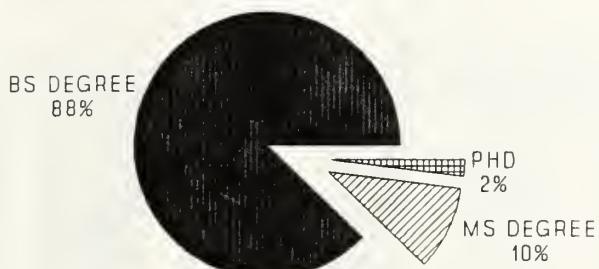
EDUCATION DISTRIBUTION
N = 147

Figure 18

i. *Paygrade Distribution*

Figure 19 shows the sample population distributed by paygrade. The sample population paygrade distribution is roughly proportional to the total population paygrade distribution. Paygrades GS-11 and GS-12 make up approximately 75% of the sample population. This is where the bulk of the workforce is in the total population.

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PAYGRADE DISTRIBUTION
BY DEPARTMENT

% OF SAMPLE POPULATION

	GS-05	GS-07	GS-09	GS-11	GS-12	GM-13	TOTAL
TOTAL	2	11	7	46	65	16	146
DEPT 900	0	3	1	9	22	1	36
DEPT 800	0	1	2	14	20	5	42
DEPT 700	2	6	3	17	13	5	46
DEPT 400	0	1	1	6	10	4	22

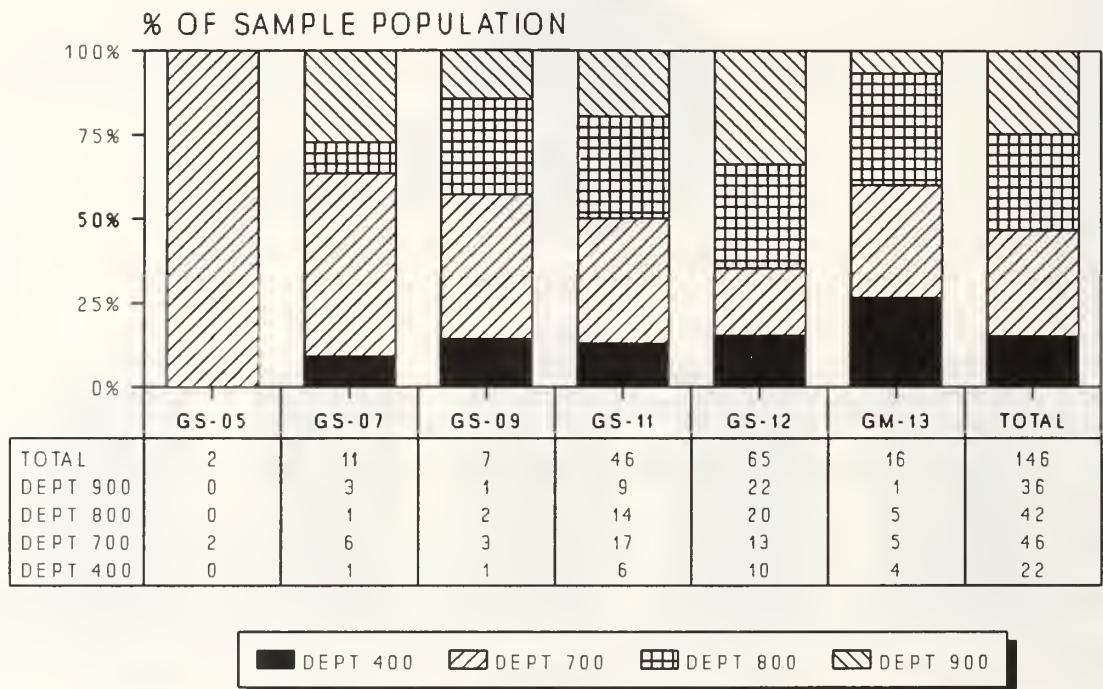■ DEPT 400   ▨ DEPT 700   ⊞ DEPT 800   ◫ DEPT 900

Figure 19

j. *Population Distribution*

Figure 20 shows the sample population distribution by department. Department 700 has the highest percentage of participants at 31% and Department 400 the lowest percentage of participants at 15%. One engineer from the Personnel Department (Dept 500) asked to participate in the survey. However, his responses will not be used to compare Department

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500 with the other departments, but will be averaged in with
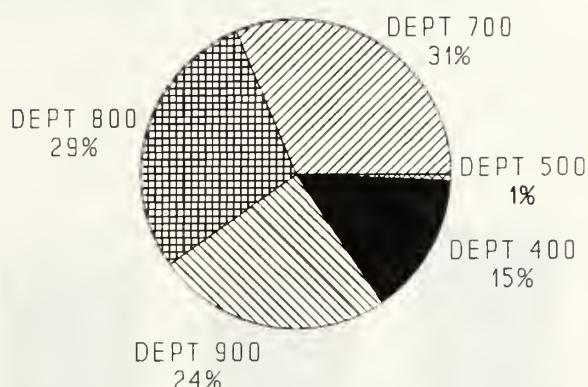the responses of the total sample population.

POPULATION DISTRIBUTION
N = 147

Figure 20

k. Supervisory Experience Distribution

Figure 21 shows the average supervisory experience
by department. All departments average between category 1 (I
am not a formally designated supervisor and I have not
supervised other persons during the past year) and category 2
(I am not a formally designated supervisor but I have
supervised other persons during the past year). Department
700 has had the most supervisory experience among its sample
population. Department 400 has had the least amount of
supervisory experience.
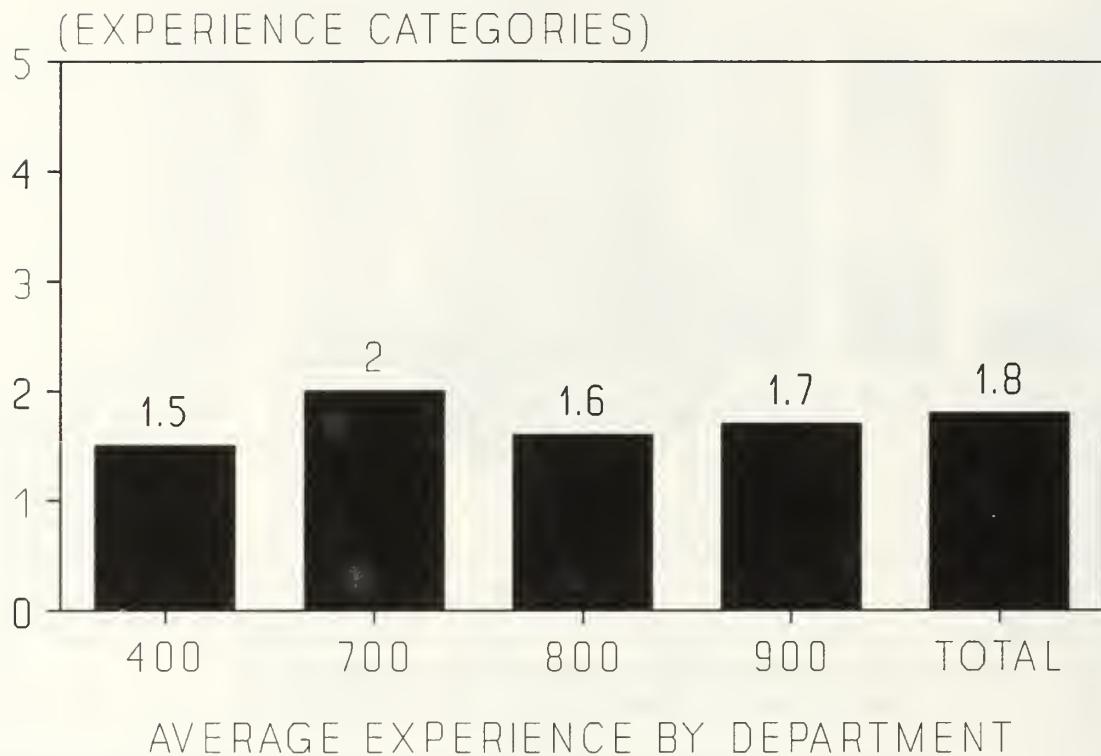
SUPERVISORY EXPERIENCE
BY DEPARTMENT

(EXPERIENCE CATEGORIES)

AVERAGE EXPERIENCE BY DEPARTMENT

Figure 21

1. NAC-Sponsored Training Distribution

Figure 22 shows the average training days of NAC-sponsored training by department and job category over the current and past two fiscal years. Department 900 has averaged the most NAC-sponsored training among the sample population in each fiscal year. Department 800's average over the three fiscal years has been steady. Department 700 has seen a sharp decline in average training days from FY 90 to FY

91. Department 400 is the only department which saw an increase in average NAC-sponsored training for its sample population workforce from FY 90 to FY 91.

Engineers averaged five more training days than scientists in FY 89. In FY 90 they averaged only one more training day than scientists. By FY 91, engineers averaged almost four days less training days than scientists.

TRAINING ATTENDANCE
BY DEPT/JOB CATEGORY

DAYS OF TRAINING ATTENDED

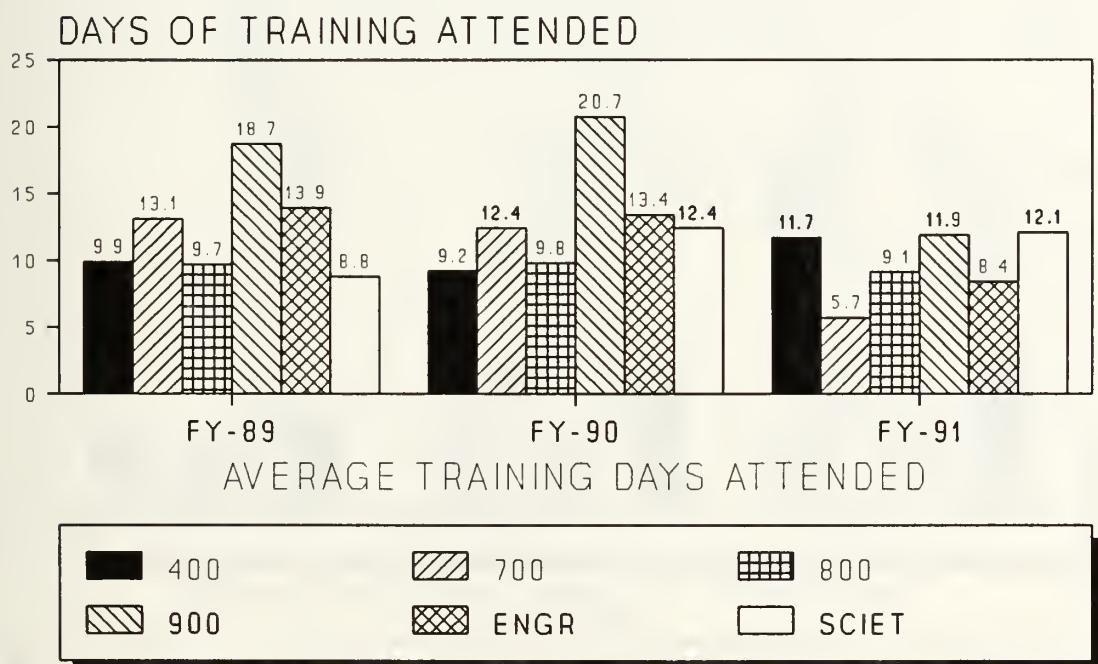AVERAGE TRAINING DAYS ATTENDED

400 700 800
900 ENGR SCIET

Figure 22

Figure 23 shows the average NAC-sponsored training days by gender and ethnic origin. Males and females have experienced

the same trends as seen by the engineers and scientists. Males averaged more than females in FY 89, about the same in FY 90 and less than females in FY 91.

Hispanics averaged considerably more NAC-sponsored training in each of the three fiscal years and was the only ethnic group to increase its average from FY 90 to FY 91. Blacks averaged considerably less NAC-sponsored training over the three fiscal years than the other ethnic origins. Whites and Asians averaged about the same in each fiscal year.

TRAINING ATTENDANCE
BY GENDER/ETHNICITY

DAYS OF TRAINING ATTENDED

AVERAGE TRAINING DAYS ATTENDED
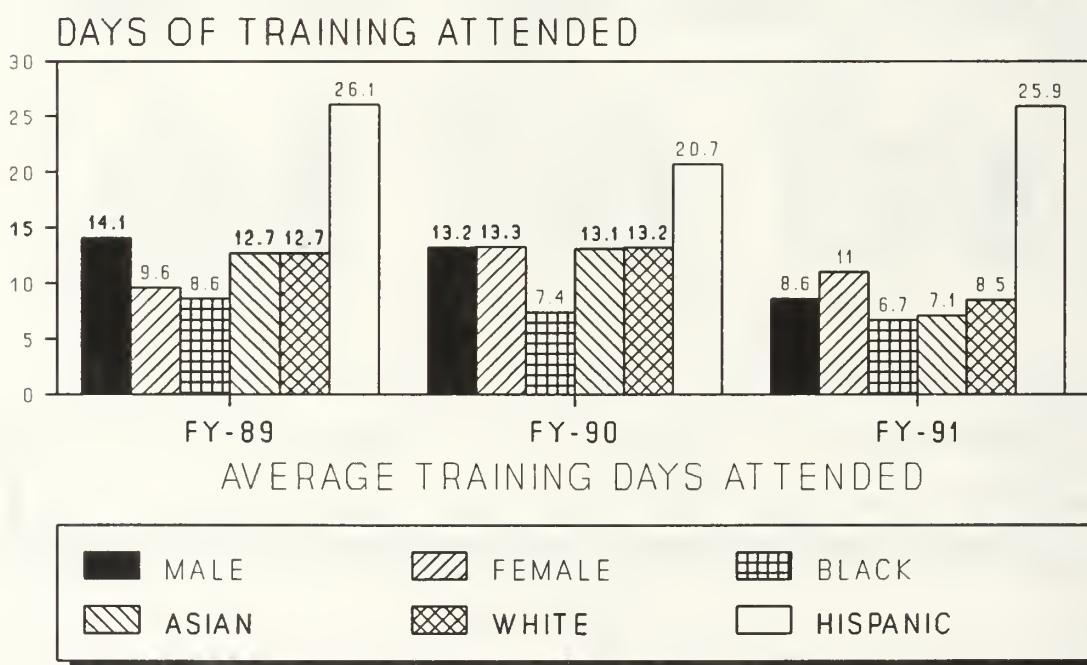
Figure 23

Figure 24 shows the average NAC-sponsored training days by paygrade. Most GS-5 and GS-7 personnel were not working at NAC during FY 89 and FY 90, but show significant amounts of training in FY 91. On average over three fiscal years, GS-11s have received the most NAC-sponsored training.

TRAINING ATTENDANCE
BY PAYGRADE

DAYS OF TRAINING ATTENDED

AVERAGE TRAINING DAYS ATTENDED

GS-05   GS-07   GS-09
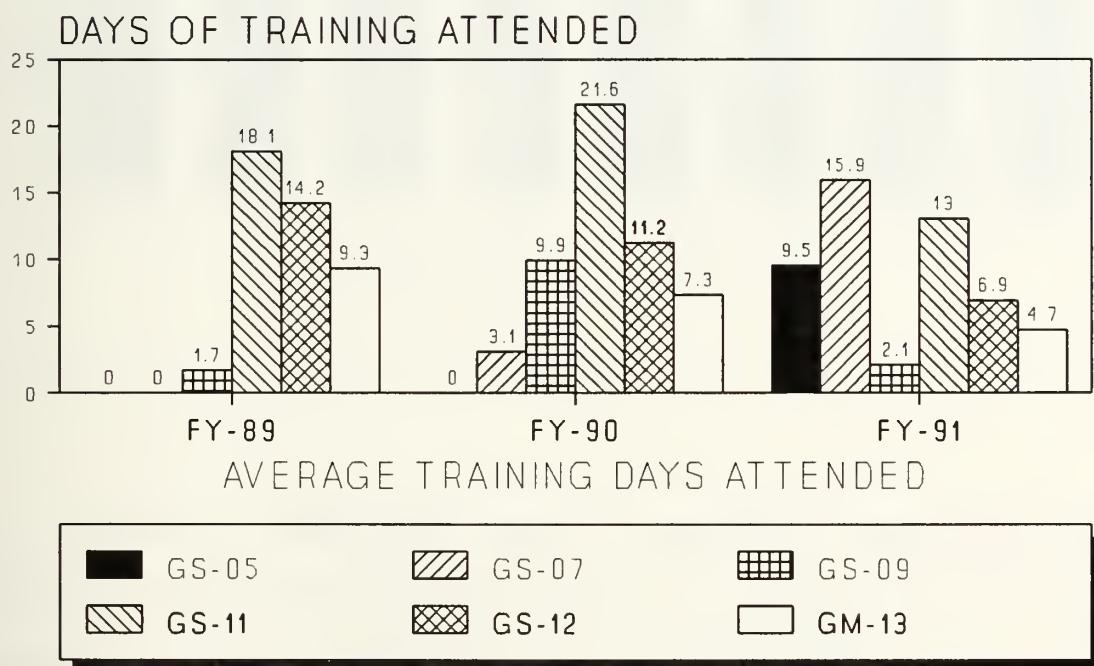GS-11   GS-12   GM-13

Figure 24

m. Career Intentions Distribution

Figure 25 shows the career intentions of the sample population by career category. There are five career categories. These are:

1 - Definitely will not

2 - Probably will not

3 - Not sure/undecided

4 - Probably will

5 - Definitely will

All major groups average between 3.5 and 4.0 with very little difference between them.

CAREER INTENTIONS
BY DEPT/JOB/GENDER

NUMBER OF CAREER CATEGORIES
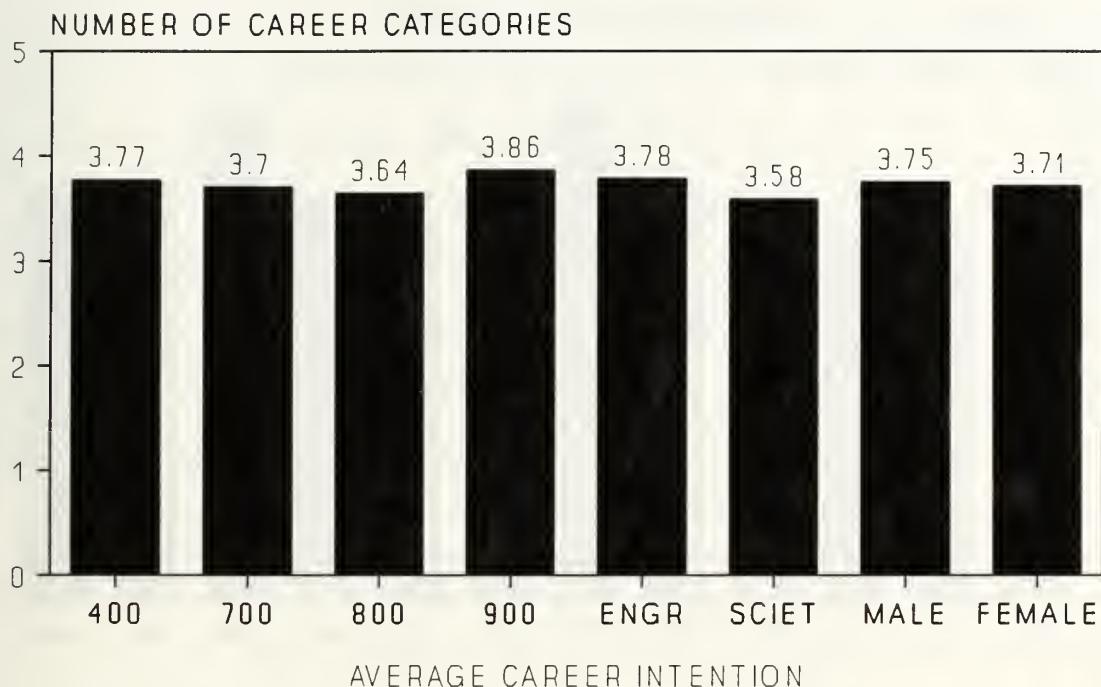
AVERAGE CAREER INTENTION

Figure 25

Figure 26 shows the career intentions distribution by paygrade, marital status and ethnicity. Higher paygrades are more likely to make NAC a career than lower paygrades, married workers more likely than single workers, and the Black ethnic group is more likely than any other ethnic group to make NAC a career.

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CAREER INTENTIONS
BY PAYGRADE/MARITAL STATUS/ETHNICITY

NUMBER OF CAREER CATEGORIES

AVERAGE CAREER INTENTION

Figure 26
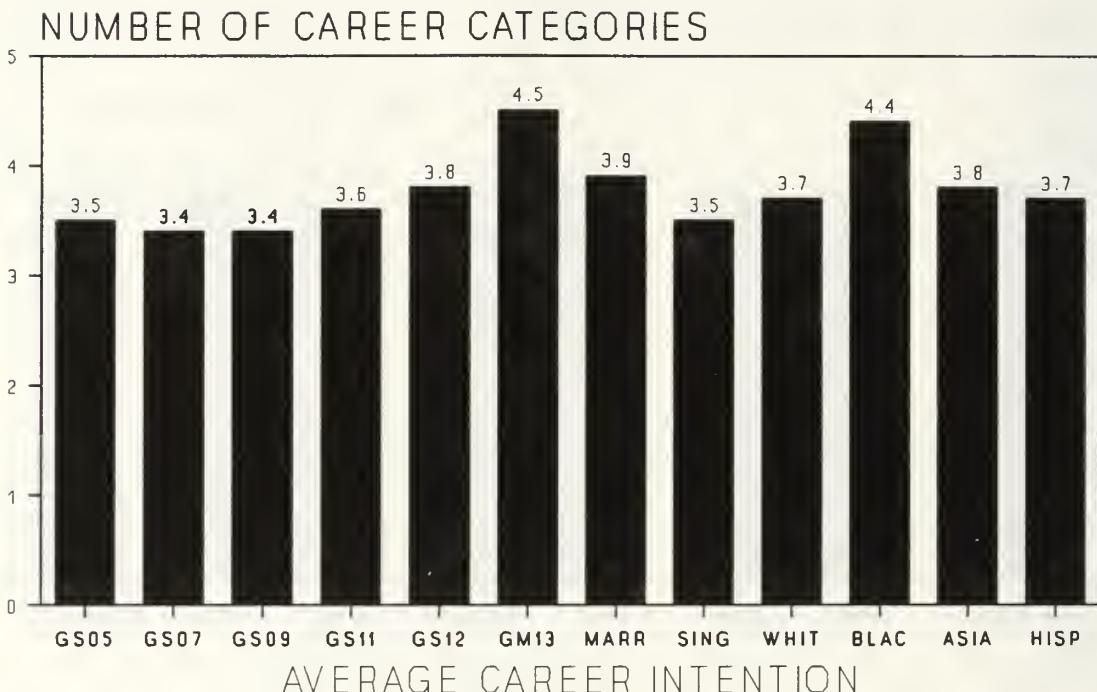
2. Administration of Training

Section II of the survey includes sixteen questions concerning the administration of NAC's training program. These questions and their statistical results are shown below.

a. Question 1 - How do you feel about the following statements?

The following scale was used for answers to questions 1-A through 1-G:

- SD--I strongly disagree with the statement

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- D--I disagree with the statement but not strongly so
- N--I am neutral toward the statement
- A--I agree with the statement but not strongly so
- SA--I strongly agree with the statement

   (1) Question 1-A Statement: I am familiar with the full range of training courses offered by NAC.

   Figure 27 shows the frequency of all responses for Question 1-A. Forty-six percent of the respondents were inclined to disagree with the statement, thirty-seven percent were inclined to agree with the statement, and the remaining seventeen percent were neutral toward the statement.

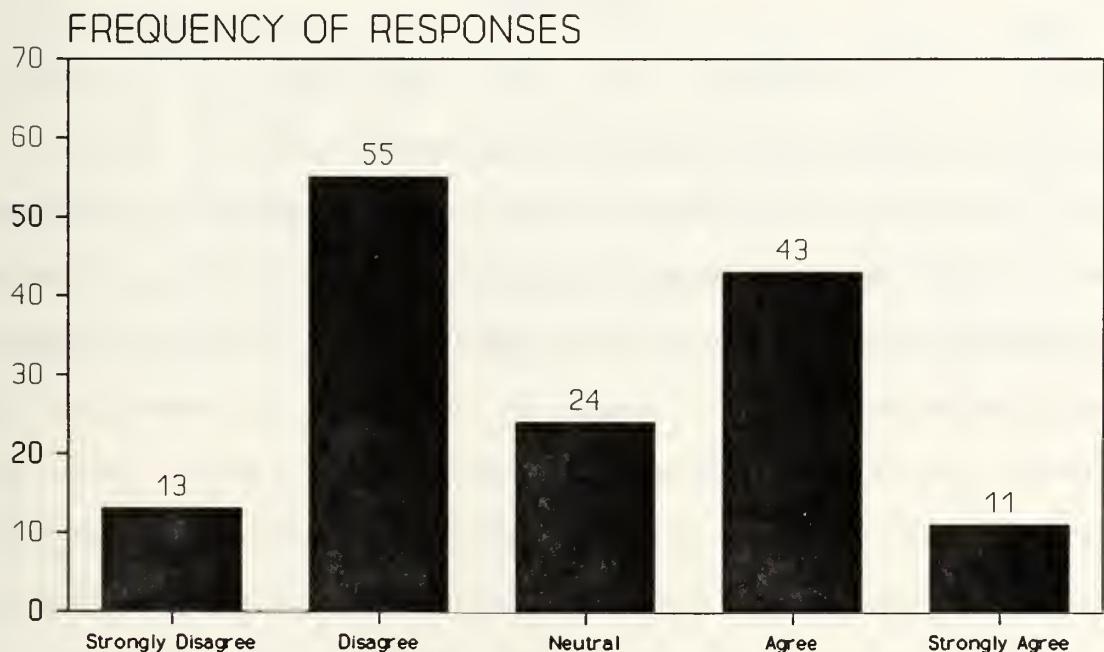# QUESTION 1-A
ALL RESPONSES

FREQUENCY OF RESPONSES

Figure 27

Figure 28 shows the average responses for Question 1-A by the total sample population, department, job category, gender and ethnicity. The average response for the total sample population indicates that scientists and engineers are inclined to disagree with the statement, but only slightly so.

Department 800's average response is the only one among the departments which is inclined to agree with the statement. This indicates that Department 800 scientists and engineers are generally familiar with the full range of training courses offered by NAC. Department 700's average response indicates the most disagreement with the statement among all of the departments.

The average response by job category shows that scientists disagree considerably more with the statement than do engineers. This indicates that scientists are inclined to be generally less familiar with the full range of training courses offered by NAC than are engineers.

The comparison of ethnic origin group average responses shows that Whites and Hispanics are inclined to disagree with the statement while Blacks and Asians are inclined to agree with the statement.

QUESTION 1–A
BY TOTAL/DEPT/CATEGORY/GENDER/ETHNICITY

SD = 1   D = 2   N = 3   A = 4   SA = 5

MEAN RESPONSES BY MAJOR GROUP
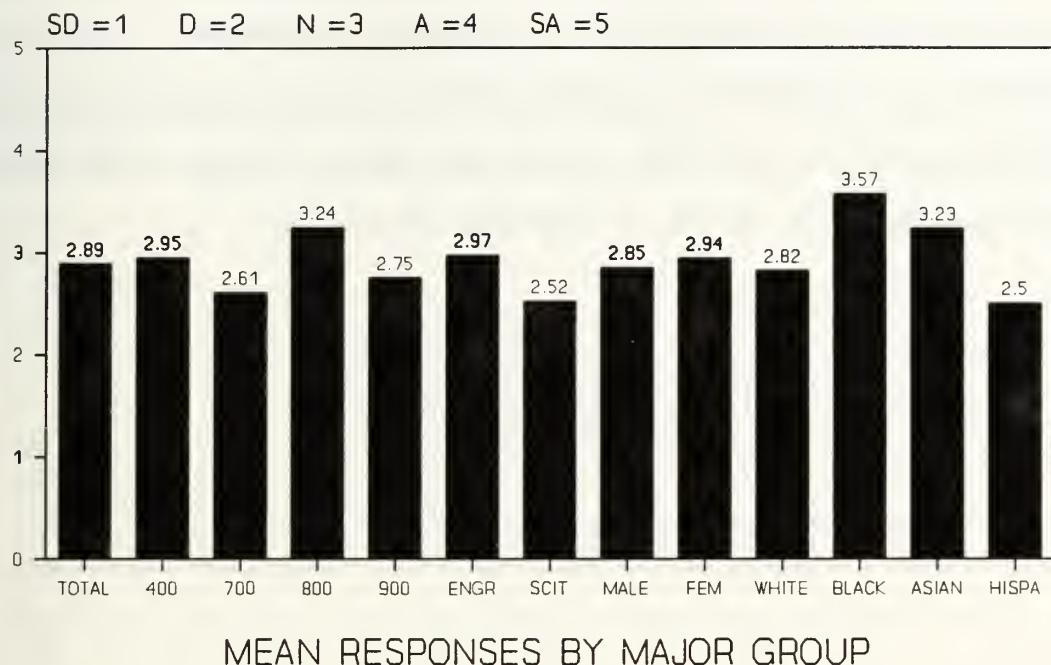
Figure 28

Figure 29 shows the average responses for Question 1-A by paygrade category, marital status and experience at NAC. The average response by paygrade category indicates that familiarity with the full range of training courses offered by NAC increases as paygrade increases. The average responses for the lower three paygrade categories shows general disagreement with the statement. The higher three paygrade categories are either neutral towards the statement or are inclined to agree with the statement.

The average response of single and married scientists and engineers indicates that both groups are inclined to disagree with the statement, but only slightly so. There is very little difference between their average responses.

The average response by experience category indicates that familiarity with the full range of training courses offered by NAC increases with years of experience at NAC.

QUESTION 1–A
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
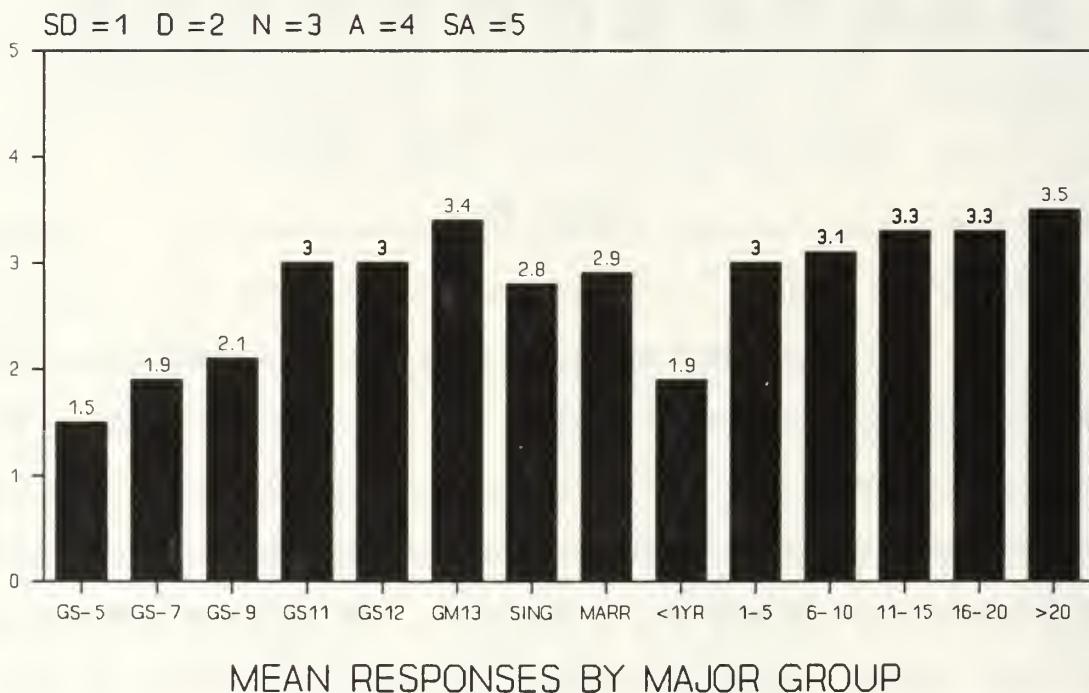
Figure 29

Figure 30 shows the average response for Question 1-A by age group category. The 41-45 year old age group category is the only category which is inclined to agree with the statement, but only slightly so. In contrast, the 21-25 year old age group category is considerably more likely to disagree with the statement than the other age group categories.

QUESTION 1-A
BY AGE CATEGORY

SD = 1 D = 2 N = 3 A = 4 SA = 5

MEAN RESPONSE BY AGE CATEGORY
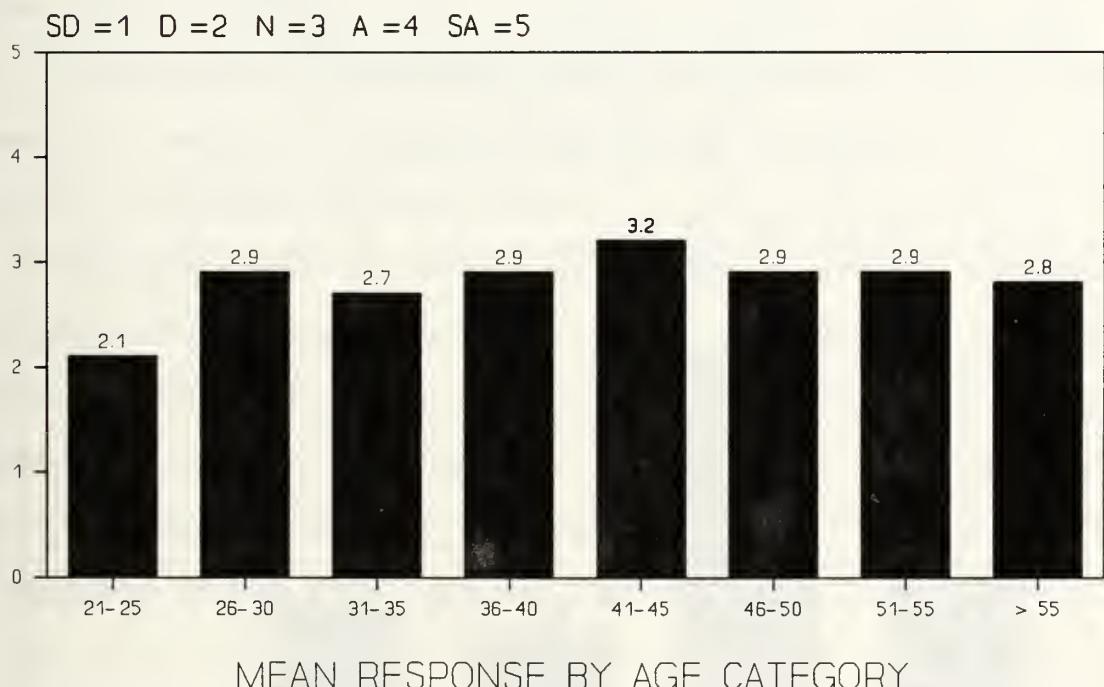
Figure 30

(2) Question 1-B Statement: I am unsure how to apply for or obtain information about NAC-sponsored training.

Figure 31 shows the frequency of all responses for Question 1-B. Sixty-one percent of the respondents were inclined to disagree to some extent with the statement, 22% were inclined to agree with the statement and 17% were neutral toward the statement. This indicates that a majority of the scientists and engineers are sure of the procedures to apply for or obtain information about NAC-sponsored training.
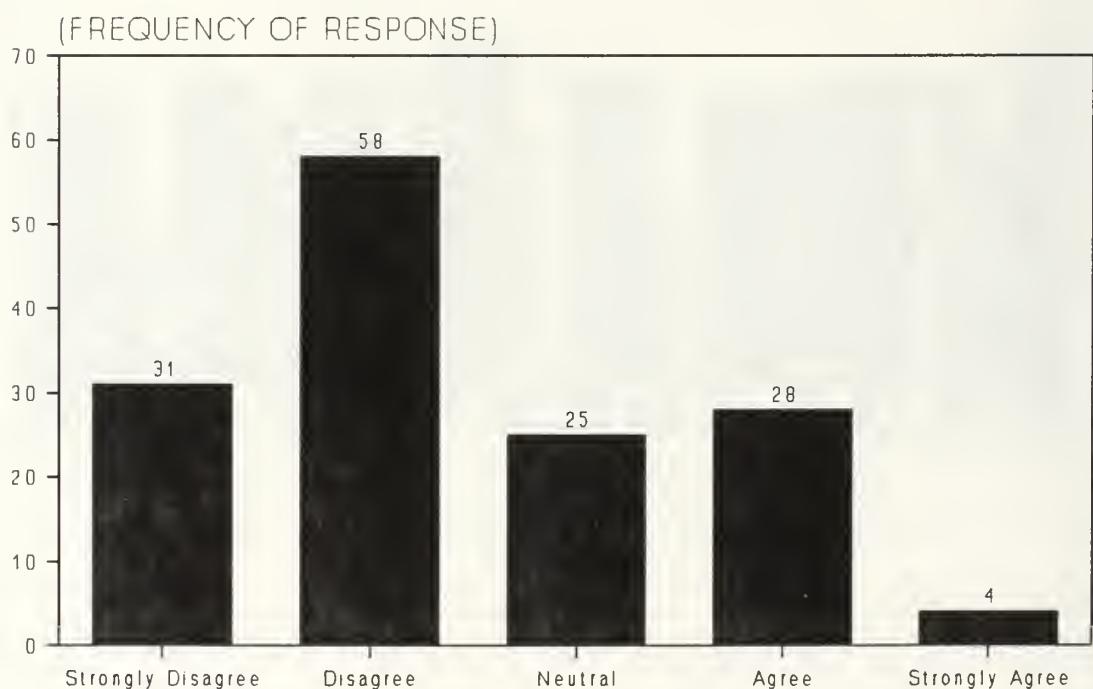
Figure 31

Figure 32 shows the average responses for Question 1-B by the total sample population, department, job category, gender and ethnicity. The average response for the total sample population indicates that scientists and engineers are inclined to disagree with the statement, but not strongly so.

The average response for each department is at or near the average response for the total sample population with very little difference between them.

The average response by job category shows that engineers are inclined to disagree considerably more with the statement than do scientists.

The average response for males and females is near the average response for the total sample population with very little difference between them.

The comparison of ethnic origin group average responses shows that Blacks are inclined to disagree with the statement more so than the average response for the total sample population or the other ethnic origins. The Hispanic ethnic origin average response is slightly higher than the average response for the total sample population.

QUESTION 1-B
BY TOTAL/ DEPT/ CATEGORY/ GENDER/ ETHNICITY

SD =1 D =2 N =3 A =4 SA =5
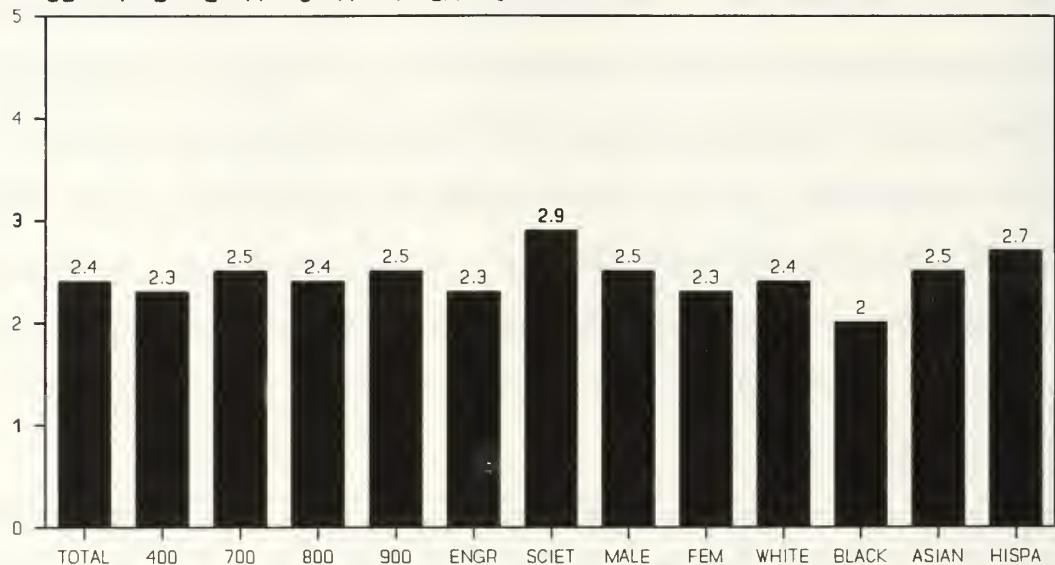
MEAN RESPONSE BY MAJOR GROUP

Figure 32

Figure 33 shows the average responses for Question 1-B by paygrade category, marital status and NAC experience. The average response by paygrade category indicates that, in general, familiarity with how to apply for or obtain information about NAC-sponsored training increases as paygrade increases.

The average response of single and married scientists and engineers indicates that there is very little difference between them in their opinion about this statement. Their

averages are very close to the average response for the total sample population.

The average response by NAC experience category shows that all categories are inclined to disagree with the statement. In general, the more experience at NAC, the greater disagreement there is with the statement.

QUESTION 1-B
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
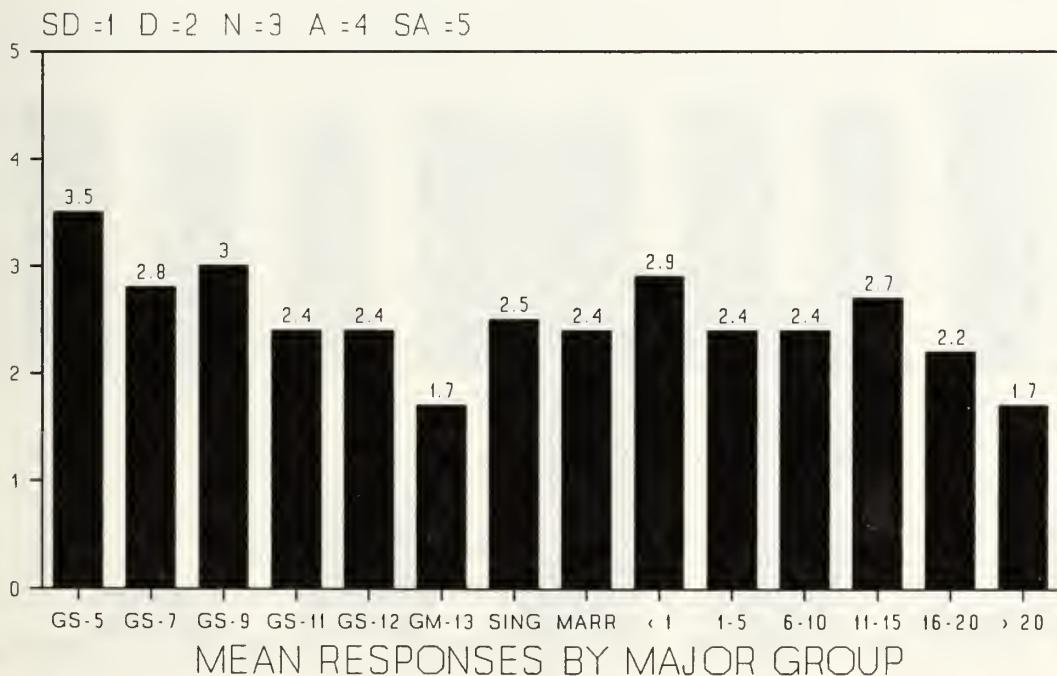
Figure 33

Figure 34 shows the average response for Question 1-B by age group category. The 21-25 year old age group category is the only age group which is considerably different than the

65

average response for the total sample population. This group is less sure of how to apply for or obtain information about NAC-sponsored training than the other age groups.

QUESTION 1- B
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
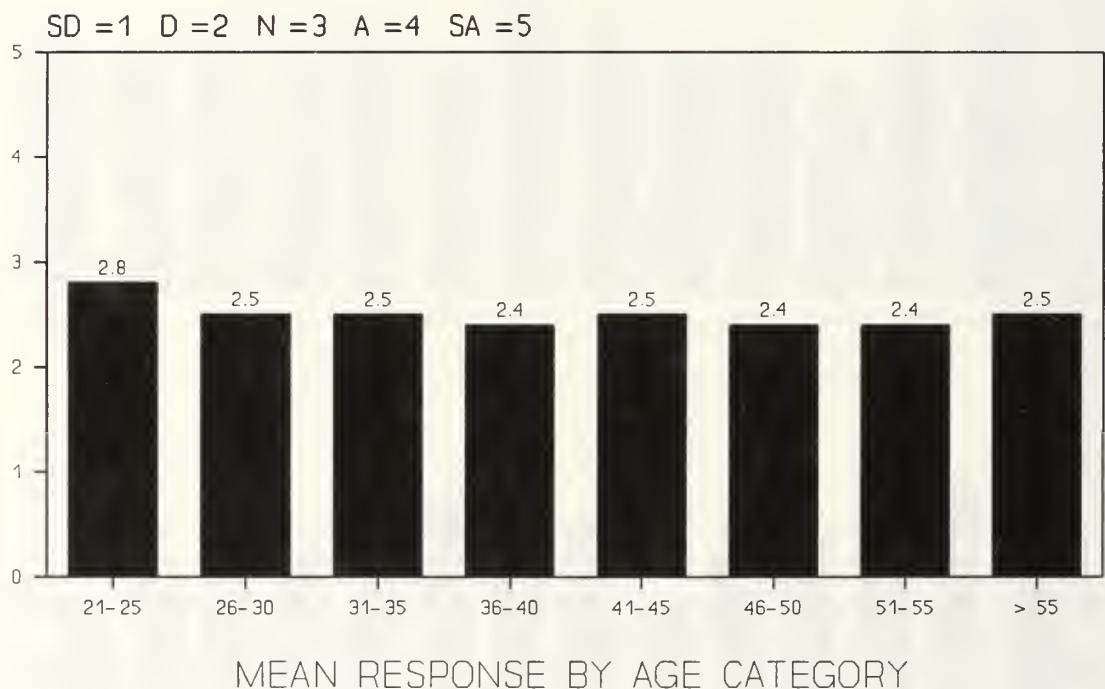
Figure 34

(3) *Question 1-C Statement: In general, NAC is responsive to suggestions for improving the quality of the courses given.*

Figure 35 shows the frequency of all responses for Question 1-C. Forty-eight percent of the respondents were

neutral towards this statement, 34% were inclined to agree to some extent with the statement and the remaining 18% were inclined to disagree with the statement. These average responses indicate that there does not appear to be any widespread problem with NAC's responsiveness to suggestions for improving the quality of the courses given.

QUESTION 1-C
ALL RESPONSES

(FREQUENCY OF RESPONSE)
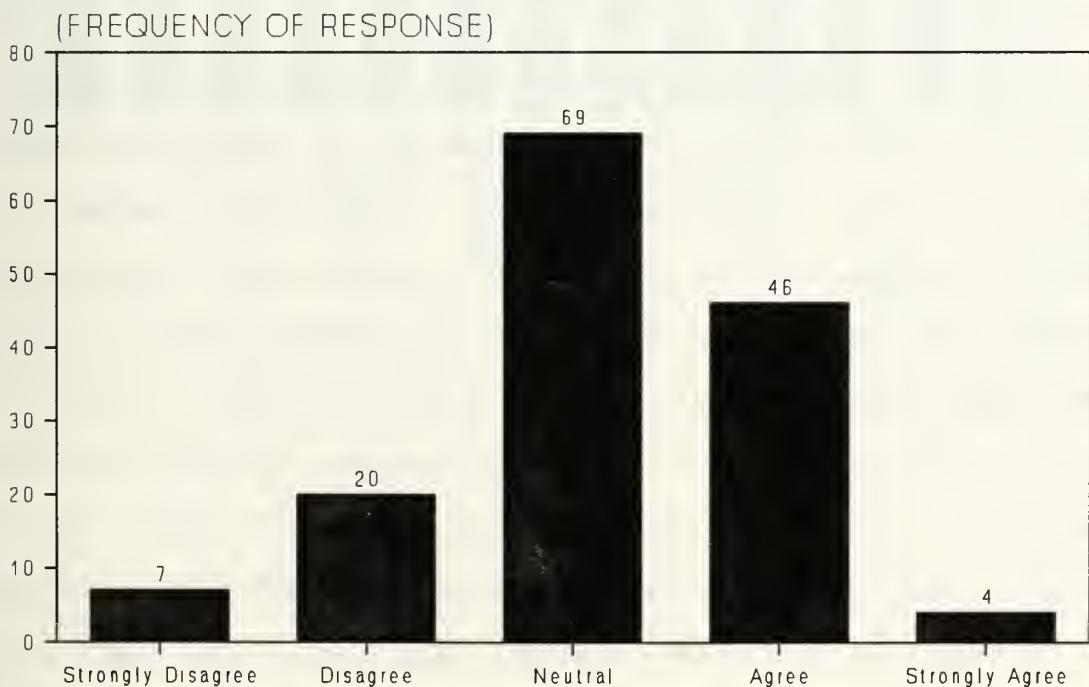
Figure 35

Figure 36 shows the average responses for Question 1-C by the total sample population, department, job category, gender and ethnicity. The average response for the total sample

population is slightly above neutrality towards the statement.

Departments 800 and 900's average responses are neutral toward the statement. Departments 400 and 700's average responses showed that these departments are slightly inclined to agree with the statement.

There is no difference of opinion between job categories or gender groups.

The comparison of ethnic origin group average responses shows that Asians are inclined to agree with the statement the most of all ethnic origins and is considerably higher than the average response for the total sample population. In contrast, the Hispanic ethinic origin group average response shows that this ethnic group is inclined to disagree to some extent with the statement and is considerably below the average response for the total sample population. The average response for Whites and Blacks is the same as that of the total sample population.

QUESTION 1-C
BY TOTAL/DEPT/CATEGORY/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY MAJOR GROUP
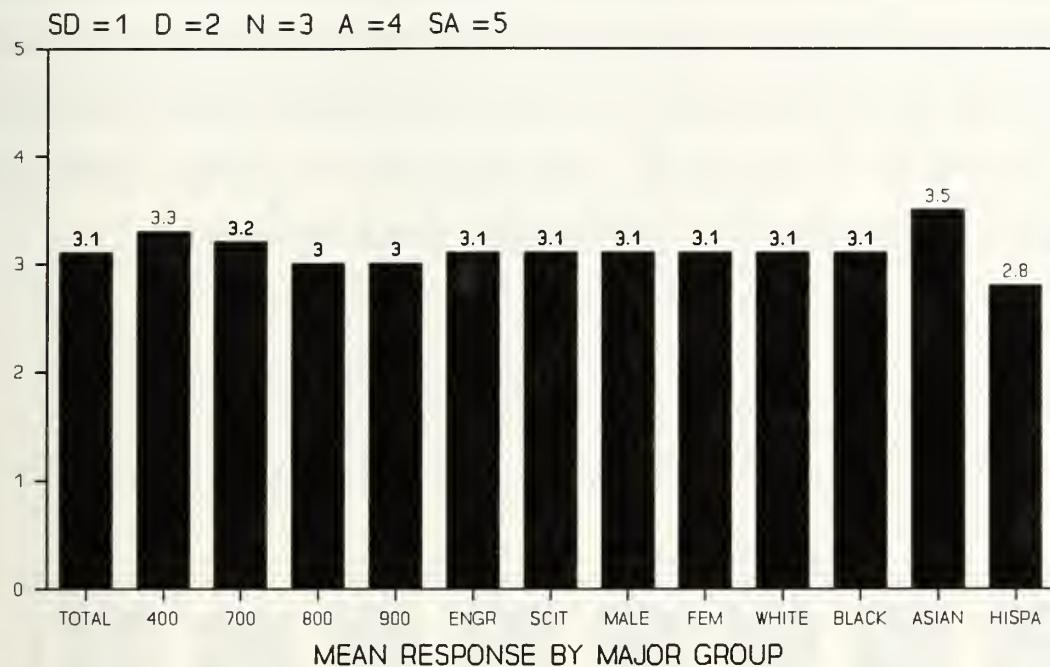
Figure 36

Figure 37 shows the average responses for Question 1-C by paygrade category, marital status and NAC experience. The GS-5, GS-9 and GM-13 paygrade category average responses indicates that these paygrade categories are inclined to agree with the statement and believe NAC is responsive to suggestions for improving the quality of the courses given. The other paygrade categories are neutral toward the statement or are slightly above neutrality.

The average response by marital status indicates single respondents are neutral toward the statement while married respondents are slightly inclined to agree with the statement.

The only trend noted by the average responses by experience group category is that the greater than 20 year group category is slightly more inclined to agree with the statement than the other experience group categories.

QUESTION 1-C
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY MAJOR GROUP

Figure 37

70
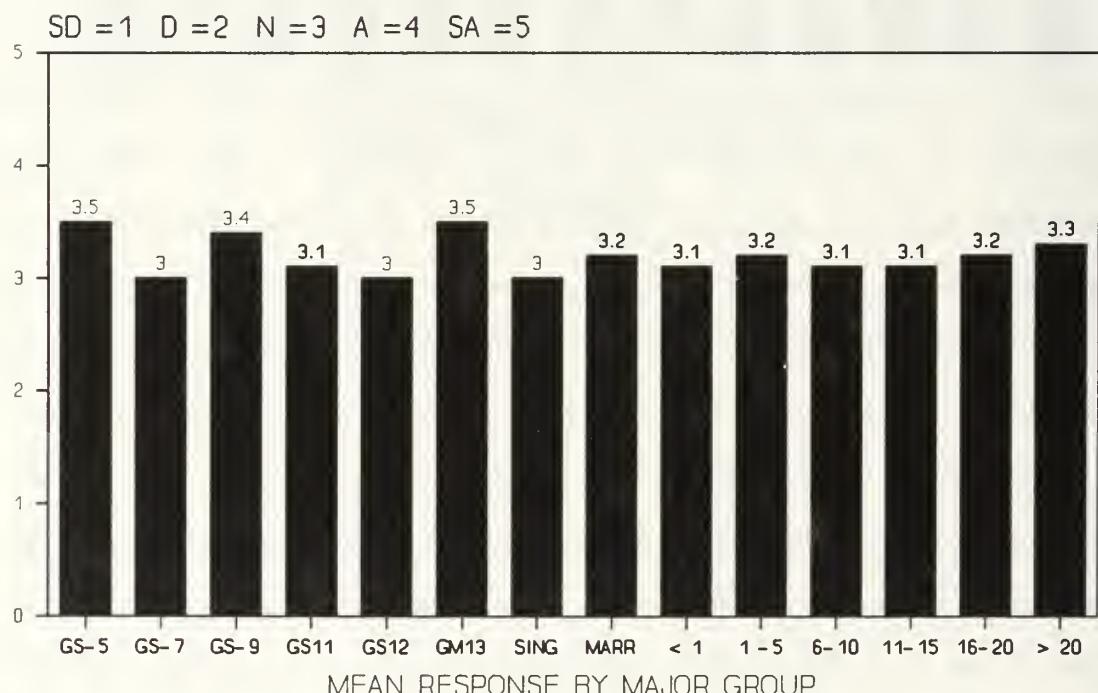
Figure 38 shows the average response for Question 1-C by age group category. There are no trends indicated among the eight age group categories. All average responses are at or near the average response for the total sample population.

QUESTION 1– C
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
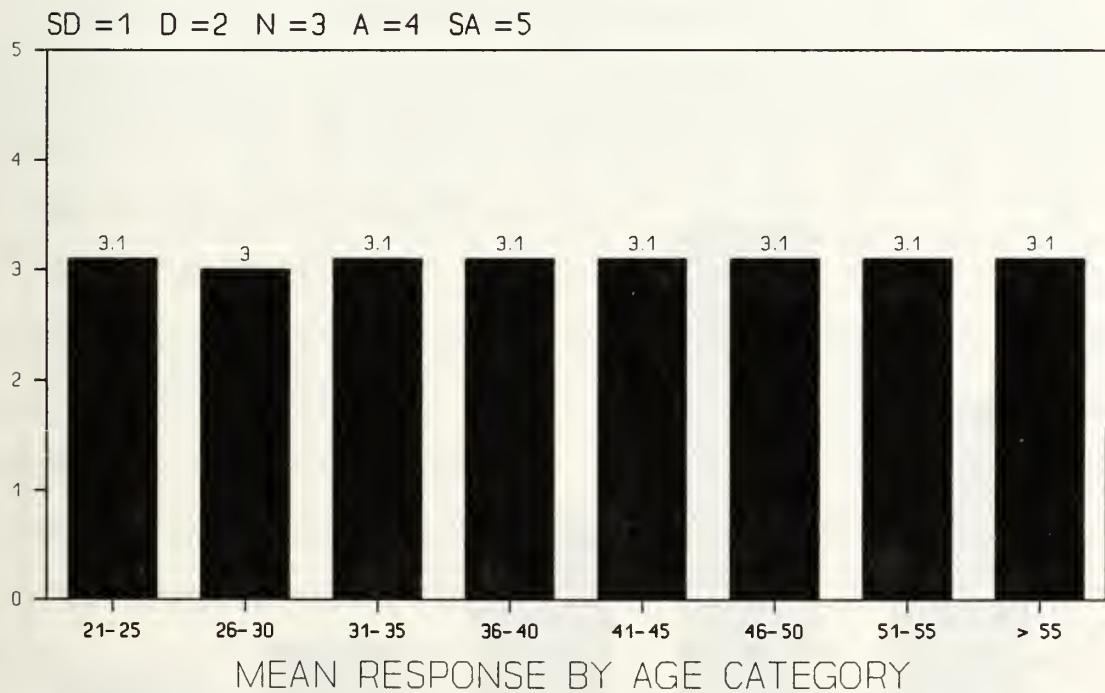
Figure 38

(4) *Question 1-D Statement: A purpose of NAC-sponsored training is to reward good performance.*

Figure 39 shows the frequency of all responses for Question 1-D. Seventy-three percent of the respondents

were inclined to disagree with the statement to some extent, 18% were neutral toward the statement and only 9% were inclined to agree with the statement. These averages indicate that very few engineers and scientists believe that a purpose of NAC-sponsored training is to reward good performance.

QUESTION 1-D
ALL RESPONSES

(FREQUENCY OF RESPONSE)
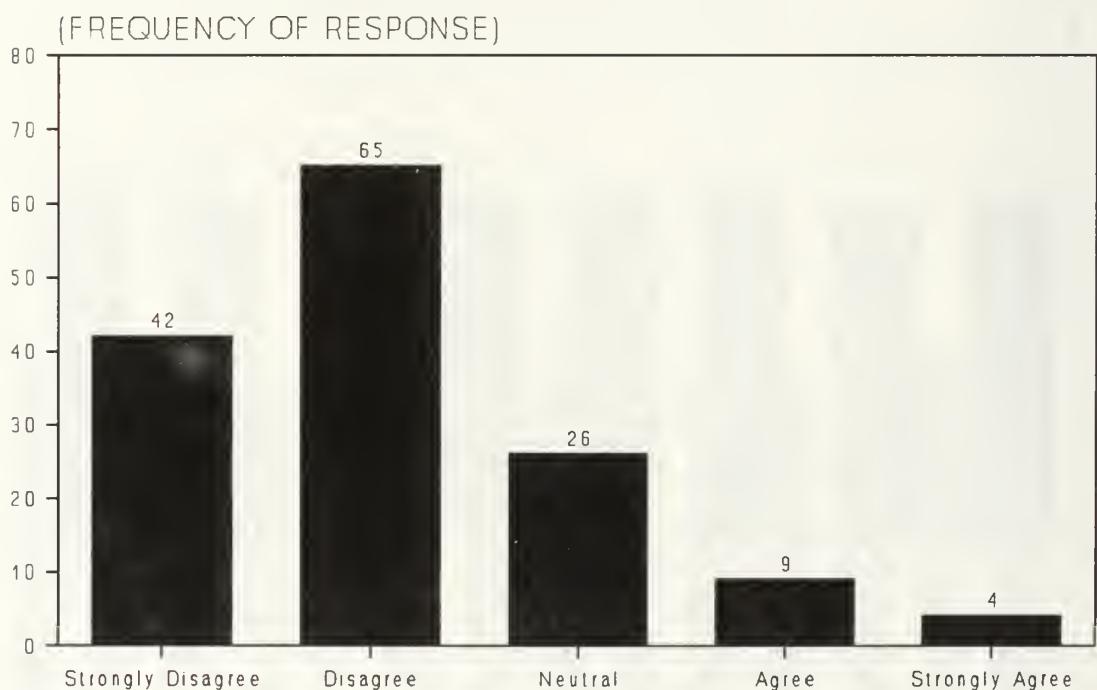
Figure 39

Figure 40 shows the average responses for Question 1-D by the total sample population, department, job category, gender and ethnicity. The average response for the total sample

population indicates the sample population disagrees with the statement, but not strongly so.

There is very little difference among the average responses of the four departments surveyed. Department 400's average response is however not as close to the average response of the total sample population as the other departments. This indicates Department 400 disagrees slightly more with the statement than the total sample population.

There is a considerable difference between the opinions of engineers and scientists for the Question 1-D statement. Scientists were inclined to disagree much less with the statement than did engineers.

There is very little difference between the opinions of males and females to the statement although the average response for females was above the average response for the total sample population and the average response for males was below the average response for the total sample population.

The comparison of the average responses by ethnic group indicates that Blacks and Hispanics are inclined to disagree less with the statement than Whites, Asians and the total sample population.

QUESTION 1-D
BY TOTAL/DEPT/CATEGORY/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 40

Figure 41 shows the average responses for Question 1-D by paygrade category, marital status and experience at NAC. The average response by paygrade category indicates that, in general, there is greater disagreement with this statement as paygrade increases. Managers are inclined to disagree strongly with the statement, whereas the other paygrades disagree with the statement, but not strongly so.

There is very little difference between opinions of married and single respondents as each group is close to the average response of the total sample population.

74

The comparison of average responses by experience indicates that the 11-15 and > 20 years of experience at NAC groups are inclined to disagree with the statement more so than the other experience group categories.

QUESTION 1-D
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD = 1   D = 2   N = 3   A = 4   SA = 5

MEAN RESPONSES BY MAJOR GROUP
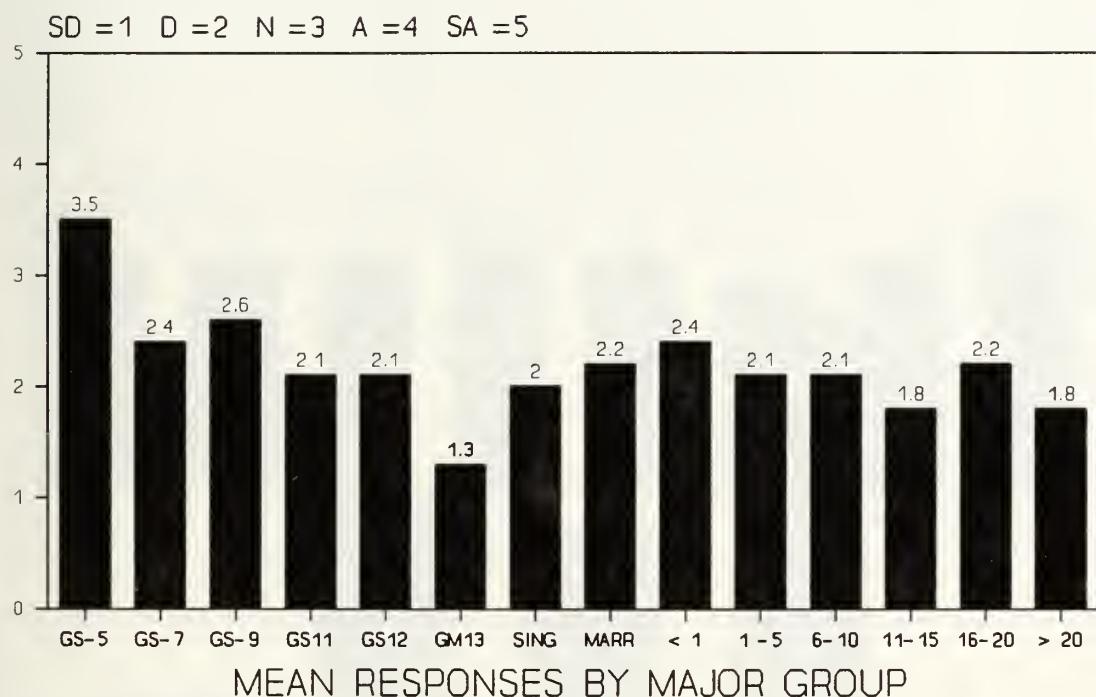
Figure 41

Figure 42 shows the average response for Question 1-D by age category. The 21-25 year old group is inclined to disagree with the statement less than the other categories and the total sample population and the 31-35 year old group is

inclined to disagree with the statement more that the other
categories and the total sample population.

QUESTION 1-D
BY AGE CATEGORY

SD =1 D =2 N J=3 A =4 SA =5

MEAN RESPONSES BY AGE CATEGORY
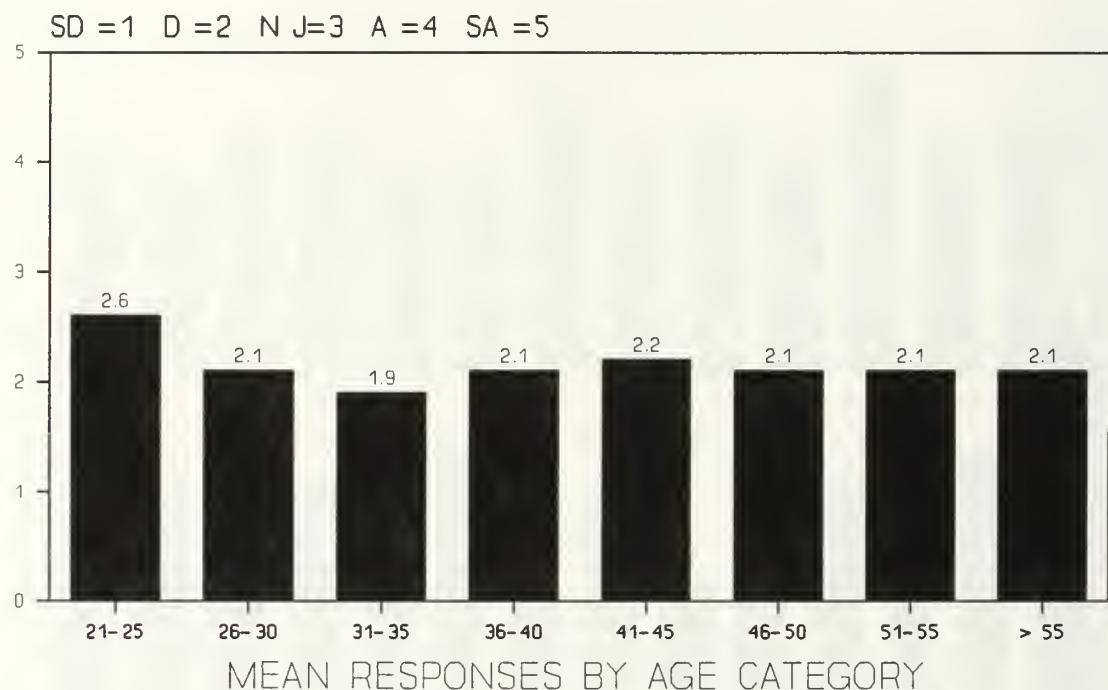
Figure 42

*(5) Question 1-E Statement: A purpose of NAC-
sponsored training is to correct job performance deficiencies.*

Figure 43 shows the frequency of all responses
for Question 1-E. Forty-five percent of the respondents were

76

inclined to agree with the statement to some extent, 33% were inclined to disagree with the statement and 22% were neutral toward the statement. These percentages indicate that there is widespread disagreement among scientists and engineers as to whether training at NAC is used to correct job performance deficiencies.

QUESTION 1-E
ALL RESPONSES

(FREQUENCY OF RESPONSE)

Figure 43

Figure 44 shows the average responses for Question 1-E by the total sample population, department, job category, gender and ethnicity. The average response for the total sample

77

population indicates that scientists and engineers overall are inclined to slightly agree with the statement.

A comparison of average responses for each department surveyed shows that Departments 400 and 900 are inclined to slightly disagree with the statement while Departments 700 and 800 are inclined to slightly agree with the statement.

There is no difference of opinion between engineers or scientists. Their average responses are the same as the total sample population.

The average responses of males indicates that they are inclined to slightly disagree with the statement while the average responses of females shows that they are inclined to slightly agree with the statement.

There are no notable differences of opinion between ethnic origin groups with the exception of Blacks who are inclined to agree with the statement slightly more so than the other groups.

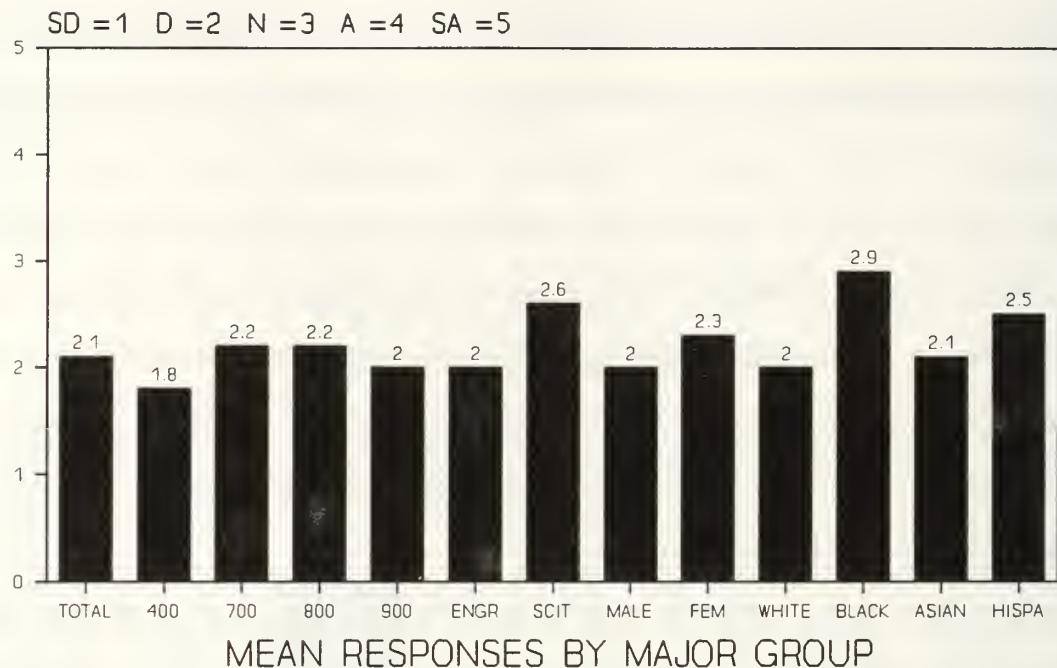SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 44

Figure 45 shows the average responses for Question 1-D by paygrade category, marital status and experience at NAC. The average response by paygrade category indicates that GS-9 and GS-12 paygrade categories are inclined to disagree with the statement to some extent while the other paygrade categories are inclined to agree with the statement.

There is no difference of opinion concerning the statement among single or married respondents.

The 11-15 years at NAC group is the only group whose average response indicates that they are inclined to disagree with the statement. The 16-20 years at NAC group's average

response shows that this group agrees with the statement much more strongly so than the other experience groups which are inclined to agree with the statement.

QUESTION 1-E
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
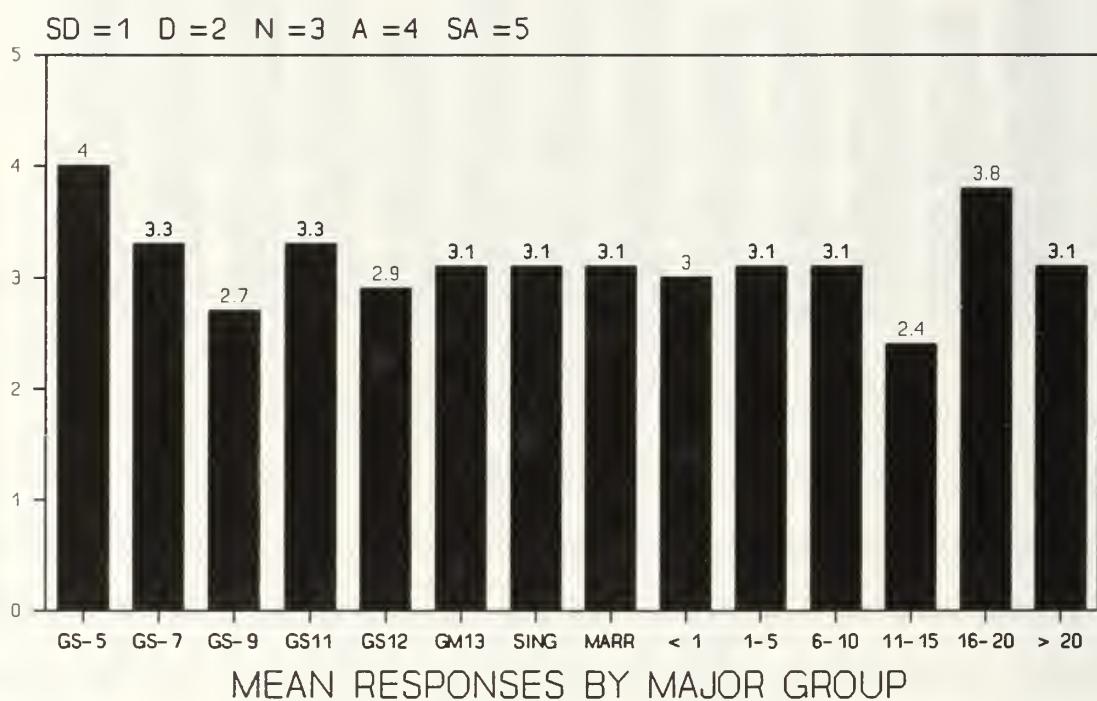
Figure 45

Figure 46 shows the average response for Question 1-D by age category. The average responses of the 21-25 and 41-45 year old age groups indicates that they are inclined to agree with the statement slightly more so than the other age categories and the total sample population.

QUESTION 1- E
BY AGE CATEGORY

SD = 1 D = 2 N = 3 A = 4 SA = 5
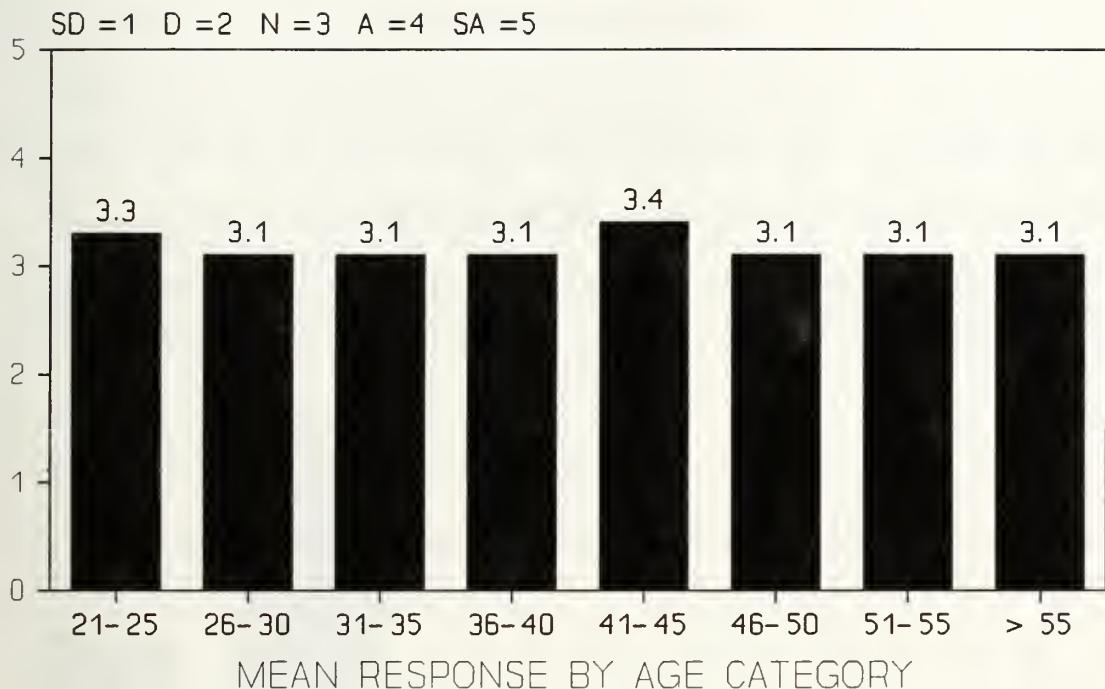
Figure 46

(6) *Question 1-F Statement: A purpose of NAC-sponsored training is to contribute to the career development of NAC employees.*

Figure 47 shows the frequency of all responses for Question 1-F. Eighty-eight percent of the respondents agreed to some extent to the statement. The other 12% is evenly divided between those who disagree with the statement and those who are neutral toward the statement. The average

81

response percentages indicates that there is general agreement
that NAC-sponsored training is designed to contribute to the
career development of scientists and engineers.

QUESTION 1-F
ALL RESPONSES
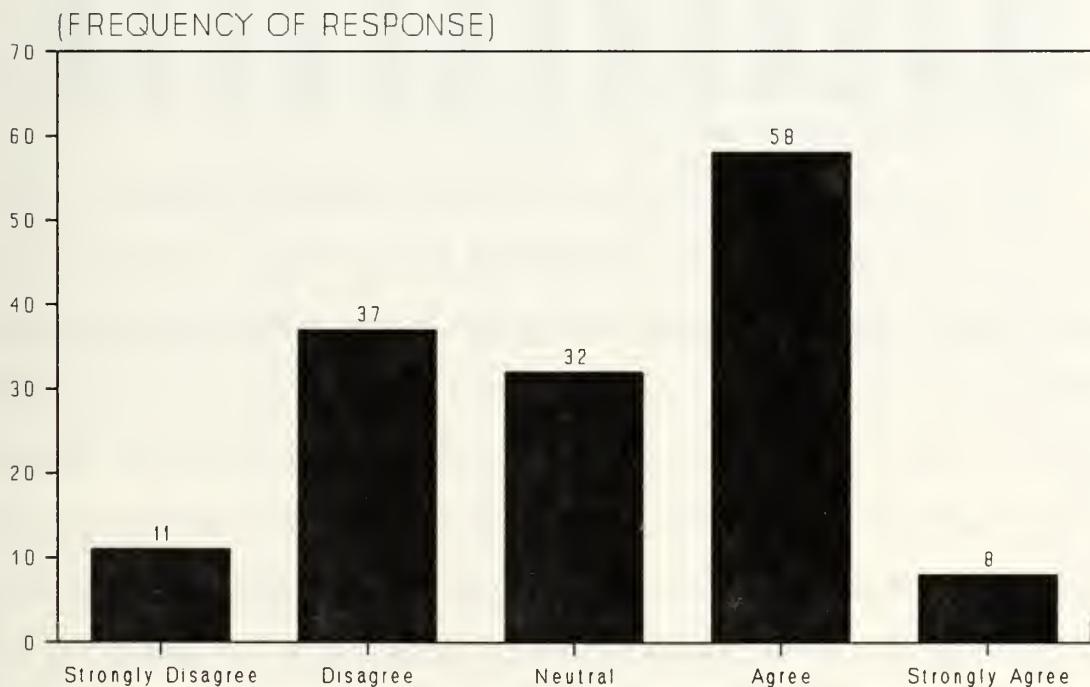
(FREQUENCY OF RESPONSE)

Figure 47

Figure 48 shows the average responses for Question 1-F by
the total sample population, department, job category, gender
and ethnicity. The average response for the total sample
population indicates that scientists and engineers are
inclined to agree with the statement, but not strongly so.

82

There is very little difference of opinion between departments surveyed except for Department 400 whose average response shows that this department agrees slightly more with the statement than the other departments.

The average response of engineers indicates that they are inclined to agree more with the statement than do scientists.

The average response of males shows that they are inclined to agree more with the statement than do females.

The only notable difference of opinion among ethnic groups is with the Hispanic ethnic origin group. The average response of this group indicates that they agree considerably more so with the statement than do any of the other ethnic groups.

QUESTION 1-F
BY TOTAL/ DEPT/ CATEGORY/ GENDER/ ETHNICITY
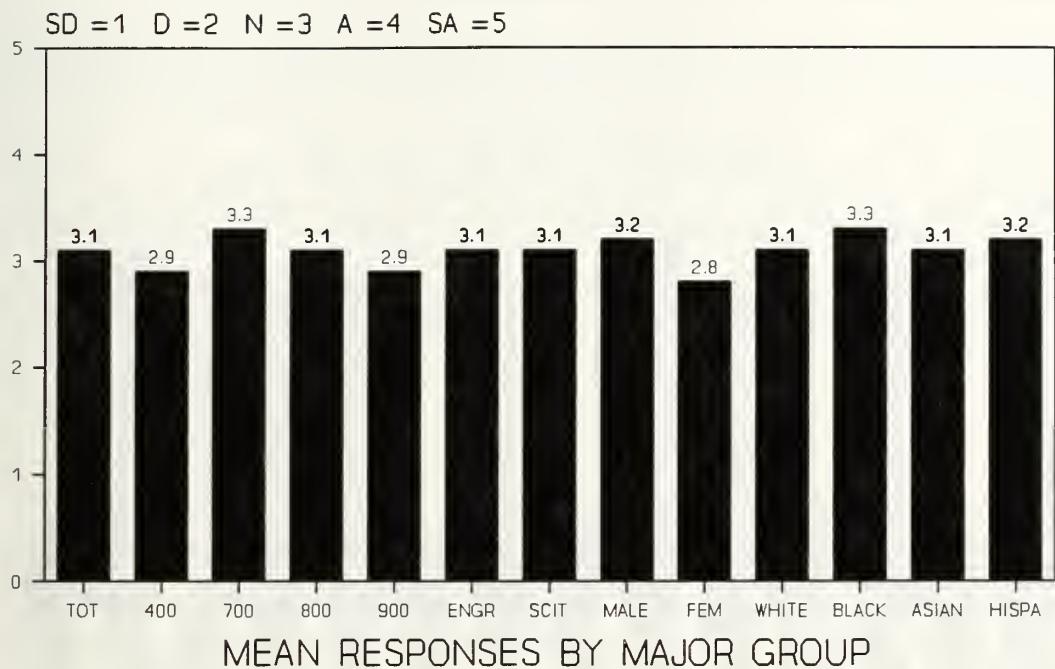

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 48

Figure 49 shows the average responses for Question 1-F by paygrade category, marital status and experience at NAC. The comparison of the average responses of the paygrade categories indicates that managers (GM-13) are inclined to agree with the statement more strongly than any other paygrade category. The GS-9 paygrade category agrees with the statement much less than any of the other paygrade categories.

There is very little difference between the opinions of single or married respondents. The average response of both groups is close to the average of the total sample population.

The comparison of the experience categories shows that respondents with 11-15 years of experience at NAC are inclined to agree with the statement less than those who have more experience at NAC than they do, and those who have less experience at NAC than they have.

QUESTION 1–F
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
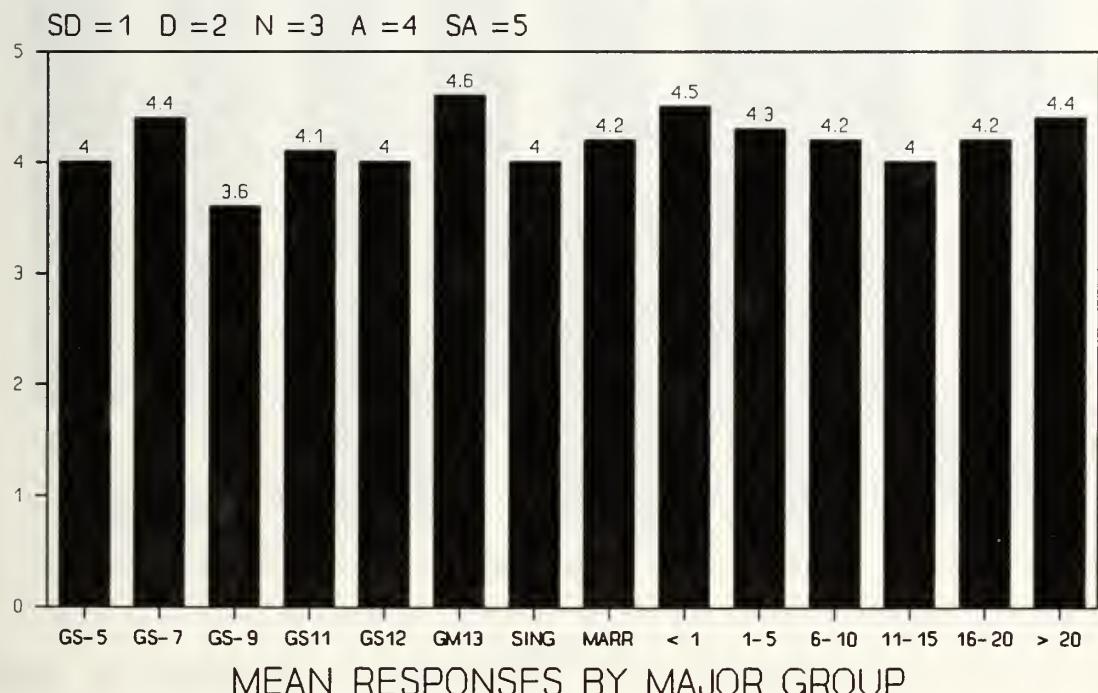
Figure 49

Figure 50 shows the average response for Question 1-F by age group category. The average response of the 31-35 year old age group category indicates that this age group agrees

with the statement slightly less than the other age group categories.

QUESTION 1-F
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
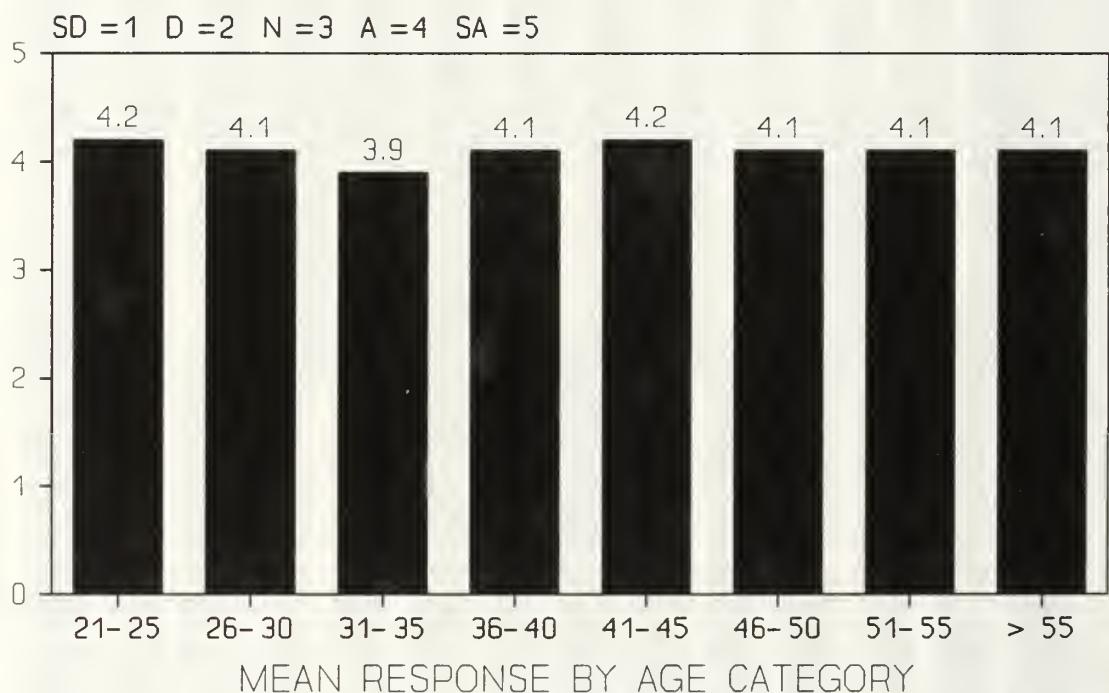
Figure 50

(7) *Question 1-G Statement: I would be more interested in NAC-sponsored training if I knew more about it.*

Figure 51 shows the frequency of all responses for Question 1-G. Fifty-five percent of the respondents were inclined to agree with the statement to some extent, 19% were inclined to disagree with the statement, and 26% were neutral

86

toward the statement. The average response percentages
indicates that there would be considerably more interest in
NAC-sponsored training if more was known about it.

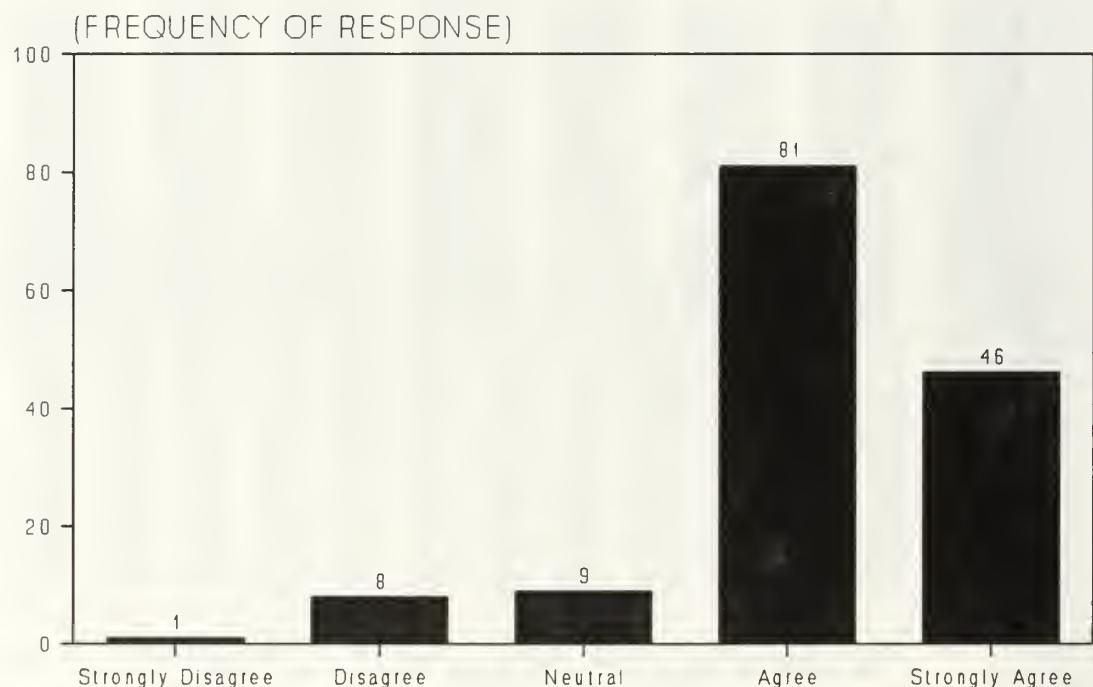## QUESTION 1-G
ALL RESPONSES
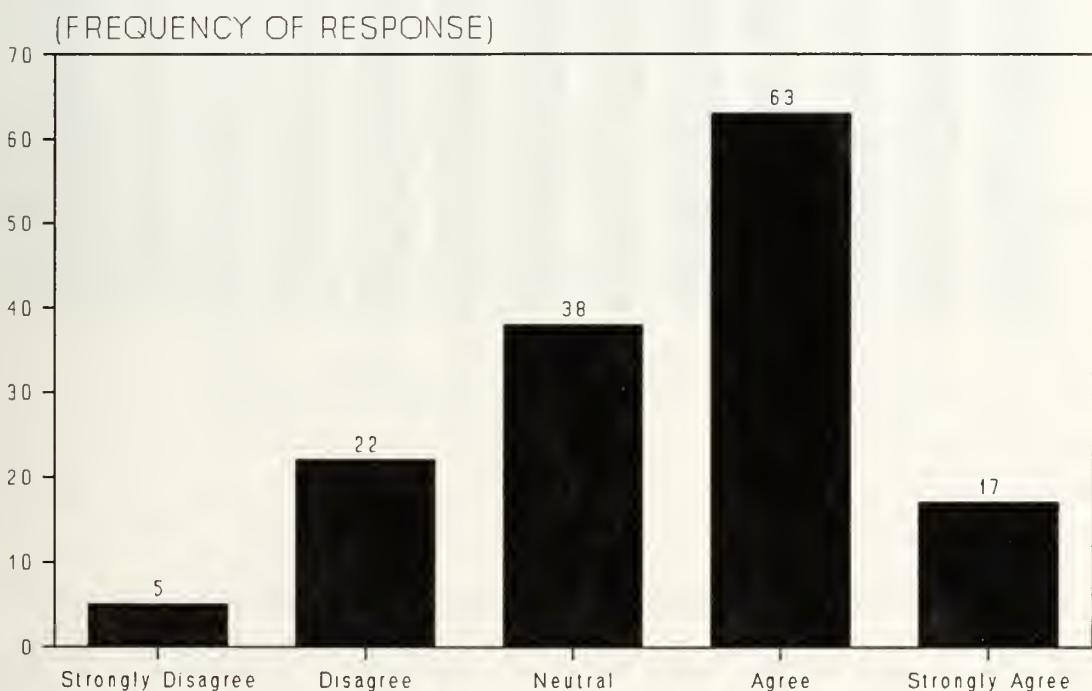
Figure 51

Figure 52 shows the average responses for Question 1-G by
the total sample population, department, job category, gender
and ethnicity. The average response for the total sample
population indicates that scientists and engineers are
inclined to agree with the statement, but not strongly so.

The average response for each department shows that Departments 400 and 700 are inclined to agree with the statement more so than Departments 800 and 900.

The average response by job category indicates that scientists agree with the statement to a greater extent than do engineers.

The average response by gender category indicates that females agree with the statement to a greater extent than do males.

The comparison of average responses for ethnic groups shows that Hispanics are inclined to agree with the statement to a greater extent than do any of the other ethnic groups.

QUESTION 1-G
BY TOTAL/DEPT/CATEGORY/GENDER/ETHNICITY

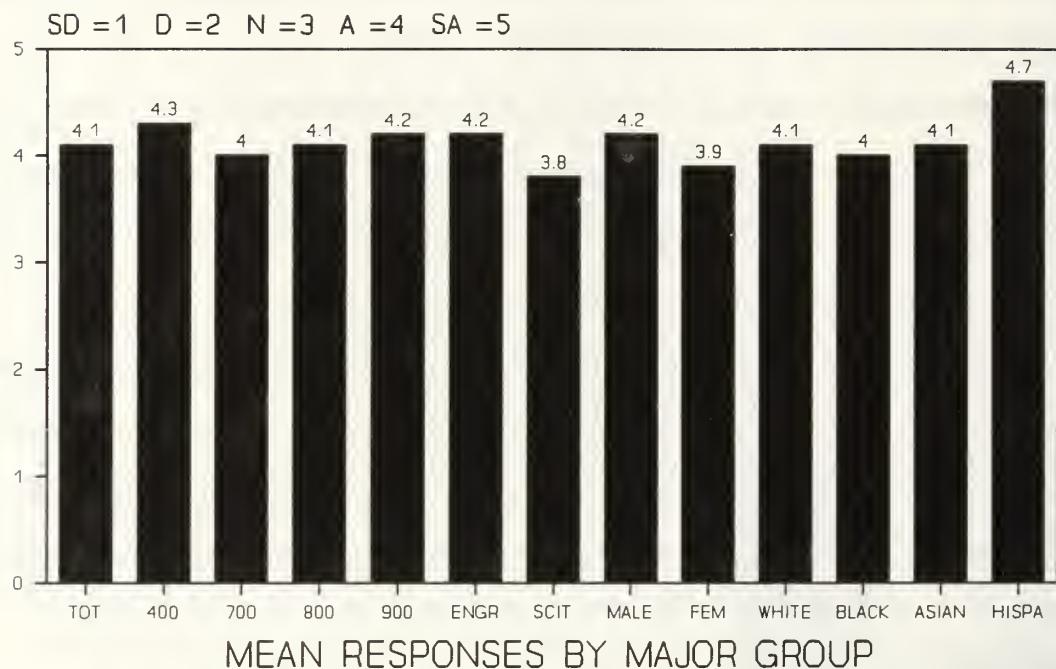SD = 1 D = 2 N = 3 A = 4 SA = 5

MEAN RESPONSES BY MAJOR GROUP
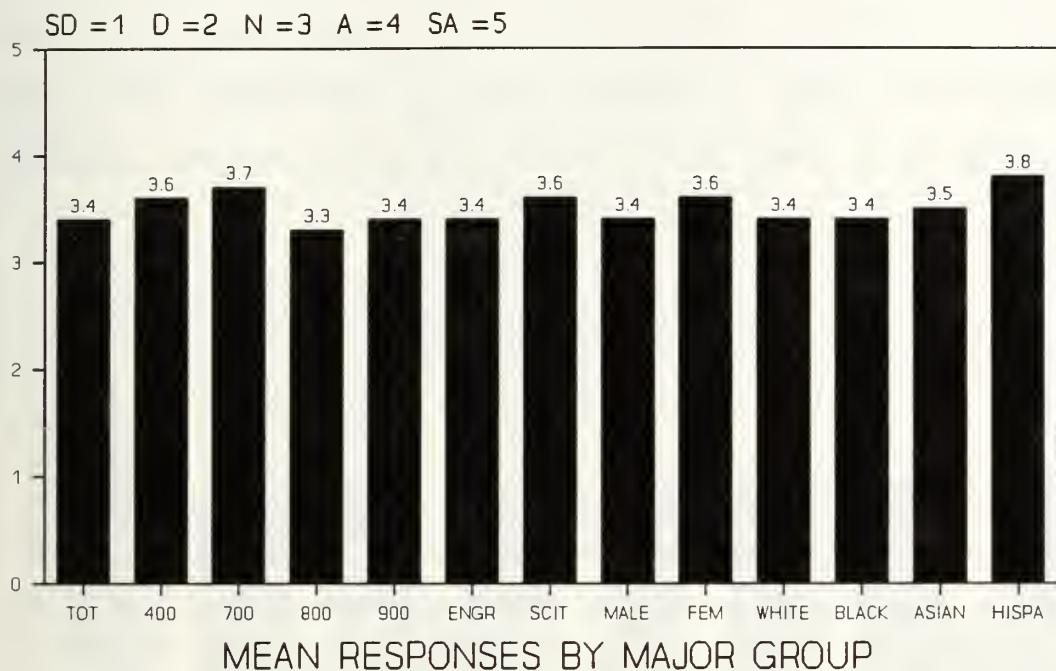
Figure 52

Figure 53 shows the average responses for Question 1-G by paygrade category, marital status and experience at NAC. Within the paygrade categories, both GS-5 respondents strongly agreed with the statement and the remainder of the GS-paygrades agreed with the statement to some extent. The average response of the managers in the GM-13 paygrade indicates that this group does not agree with the statement.

There is very little difference of opinion between single and married respondents. Both groups average at or near the average response of the total sample population.

The comparison of average responses of experience at NAC categories shows that those respondents with up to 10 years of experience at NAC agree with the statement to some extent. An analysis of average responses of those respondents who have more than 10 years of experience at NAC shows that they neither agree or disagree with the statement, but are neutral.

QUESTION 1-G
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD = 1   D = 2   N = 3   A = 4   SA = 5

MEAN RESPONSES BY MAJOR GROUP
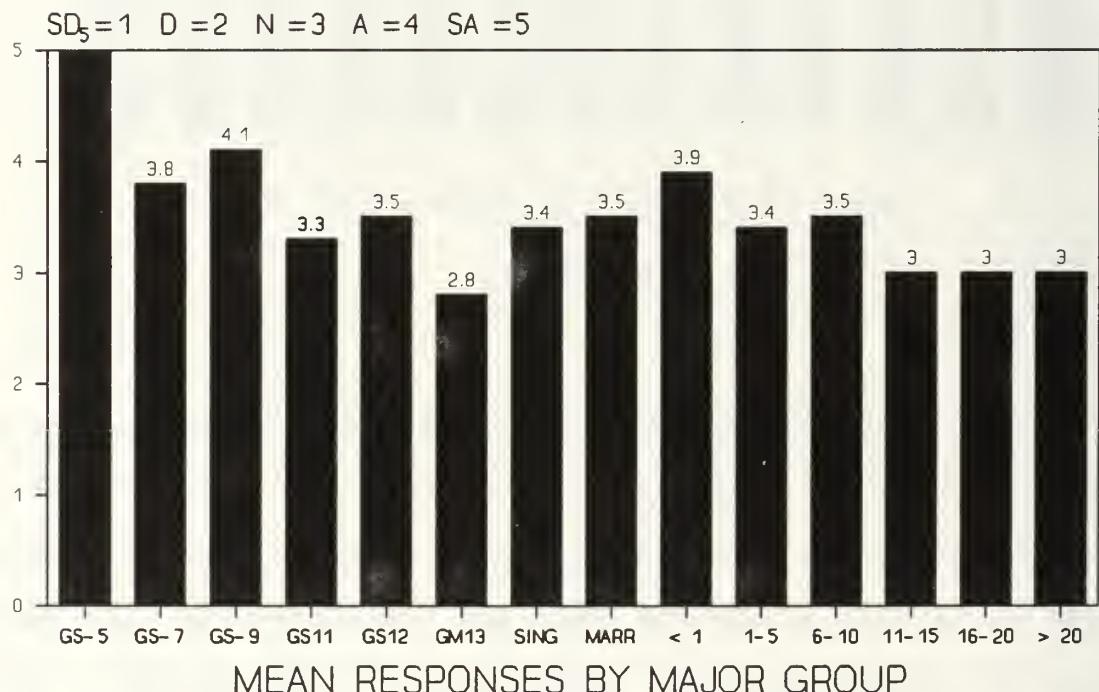
Figure 53

Figure 54 shows the average response for Question 1-G by age group category. The average response of the 21-25 year old age group is the only one which is considerably different

90

than those of the other age group categories. The 21-25 year old age group is inclined to agree to a greater extent with the statement than the other age groups.

QUESTION 1-G
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
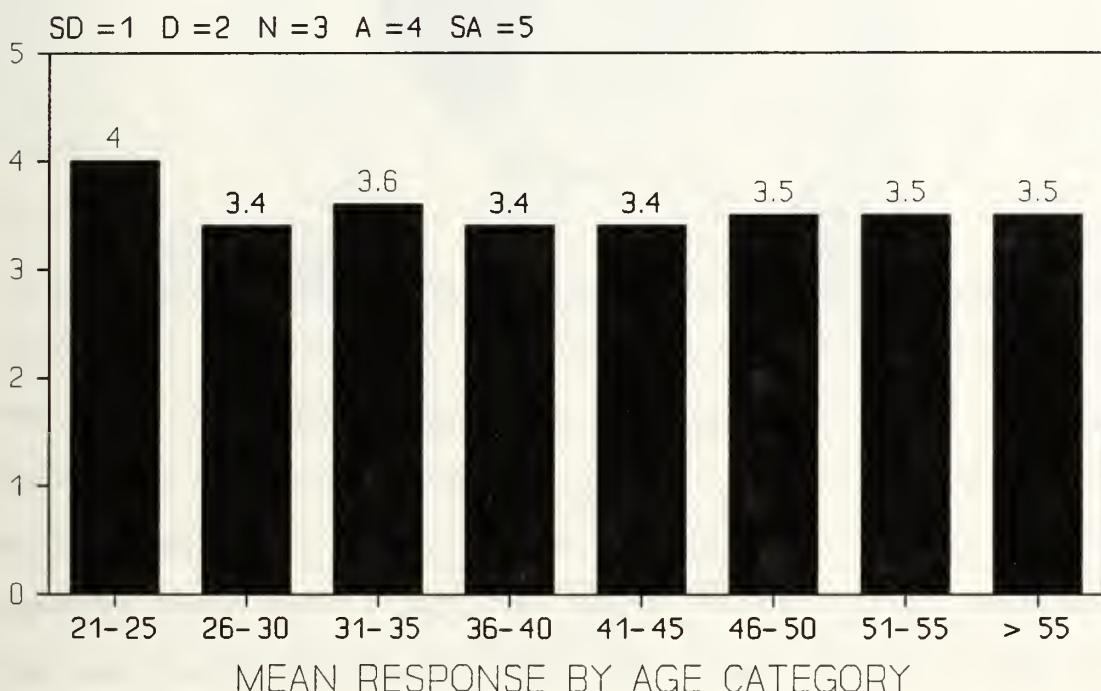
Figure 54

   b. Question 2:   Do you have an Individual Development
   Plan (IDP)?

Figure 55 shows the numbers and percentages of all responses to Question 2.   Eight out of every ten scientists and engineers have an IDP.

91

YES 80%
117

NO 20%
29
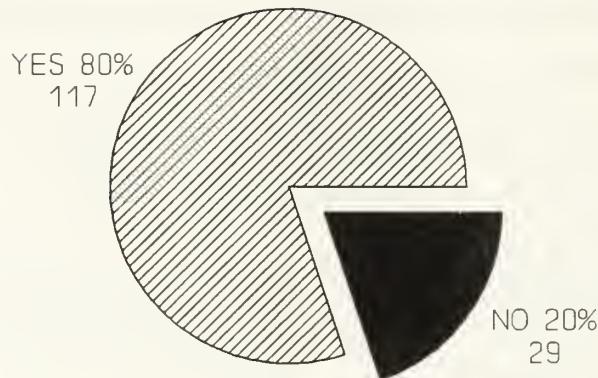
Figure 55

Figure 56 shows the frequency of responses for Question 2 by department and job category. An analysis of no/yes responses for each department shows that Department 700 has the highest percentage of engineers and scientists who do not have an IDP. One out of every three respondents from Department 700 did not have an IDP. The next closest department is Department 900 with 22% of its scientists and engineers who do not have IDPs. The lowest percentage of engineers and scientists who do not have an IDP are from Departments 400 and 800. Both of these departments averaged only 9% of its scientists and engineers who did not have an IDP.

The engineer community has a slightly higher percentage of people without an IDP (21%) than the scientist community (16%).

QUESTION 2
BY DEPT/ CATEGORY

FREQUENCY OF RESPONSES

DEPARTMENT/ JOB CATEGORY

NO/ YES RESPONSES
■ NO   ▨ YES
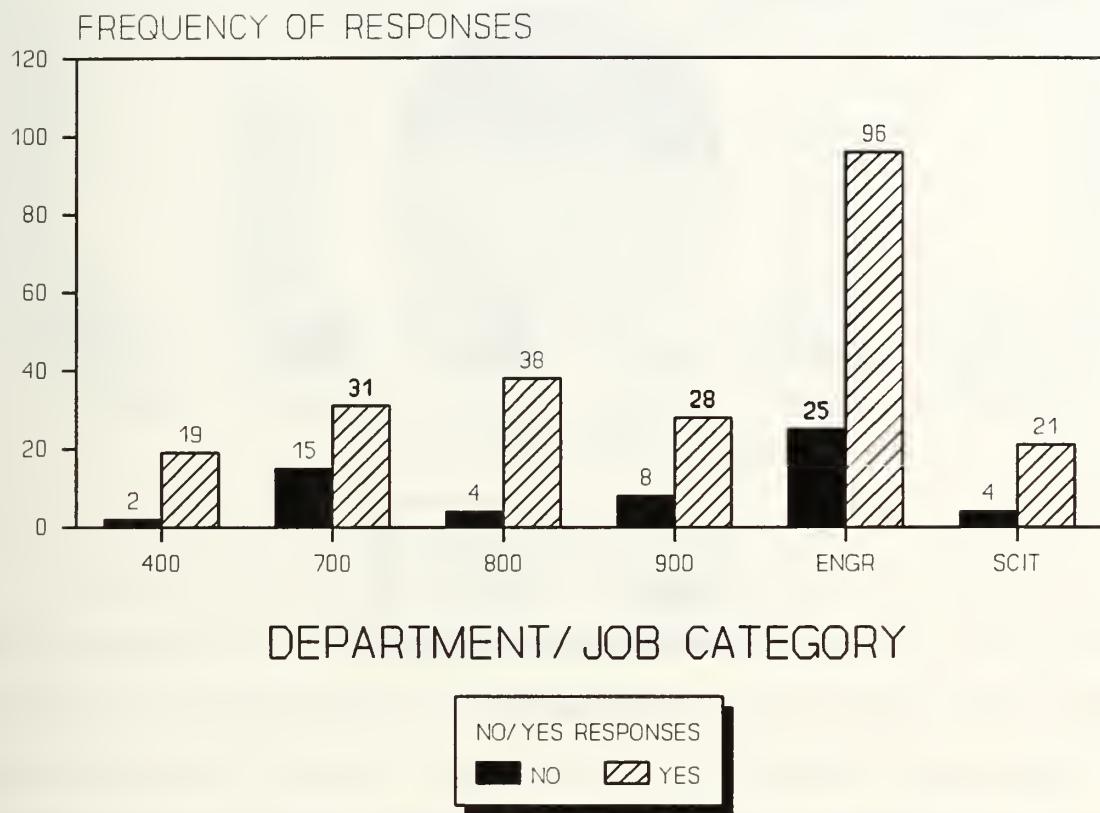
Figure 56

Figure 57 shows the frequency of response for Question 2 by paygrade category. An analysis of the no/yes responses by paygrade shows that one out of every three GS-11s did not have an IDP. In contrast, every manager (GM-13) had an IDP.

93

QUESTION 2
BY PAYGRADE

FREQUENCY OF RESPONSES

PAYGRADE CATEGORIES

NO/ YES RESPONSES
■ NO ▧ YES
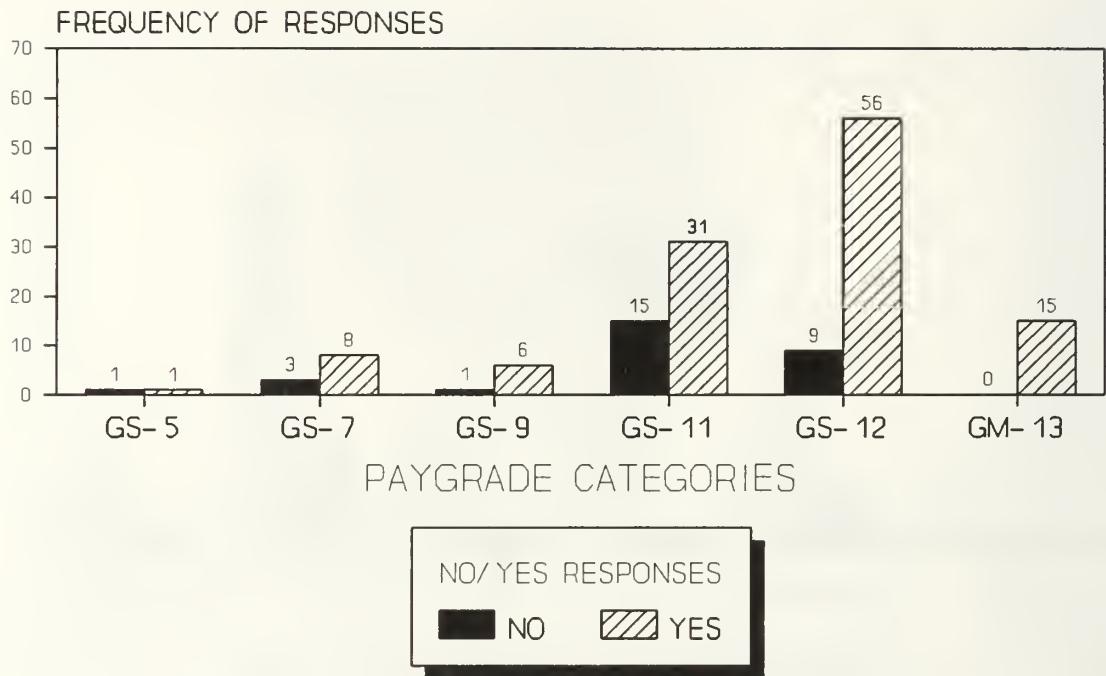
Figure 57

c. *Question 3: If you answered "Yes" to the above question (#2), does training have to be listed on the IDP for it to be approved?*

Figure 58 shows the numbers and percentages of all responses to Question 3. Fifty-three percent of those surveyed said that training did have to be listed on the IDP for it to be approved.

QUESTION 3
ALL RESPONSES

NO 47%
55

YES 53%
61

Figure 58

Figure 59 shows the frequency of responses for Question 3 by department and job category. An analysis of the no/yes responses by department indicates that Department 700 is the only department where a majority of its sample population is not required to have training listed on the IDP for it to be approved.

The comparison of responses by job category shows very little difference in their opinions. Engineers and scientists both have slightly more than 50% of their community who are required to have training listed on their IDP for it to be approved.

QUESTION 3
BY DEPARTMENT/ JOB CATEGORY

FREQUENCY OF RESPONSES

DEPARTMENT/ JOB CATEGORY

NO/ YES RESPONSES

■ NO ▨ YES

Figure 59

Figure 60 shows the frequency of responses for Question 3 by paygrade category. The only paygrade category which has a higher percentage of its members who do not have to have training listed on the IDP for it to be approved is GM-13, the managers.

QUESTION 3
BY PAYGRADE

FREQUENCY OF RESPONSES
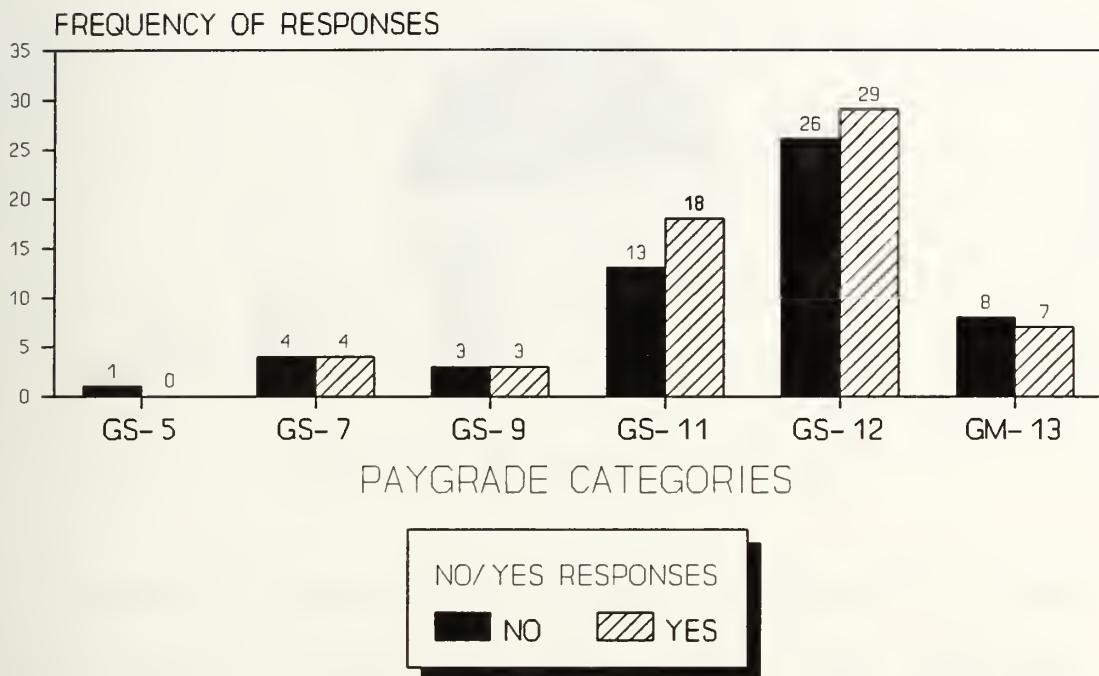
Figure 60

d. *Question 4:   Does anyone, other than you, have input into your IDP?*

Figure 61 shows the frequency of all responses for Question 4.   Fifty-four percent of those surveyed said that there is someone else who has input into their IDP.

Figure 61

Figure 62 shows the frequency of responses for Question 4 by department and job category. An analysis of the no/yes responses by department shows that Department 800 is the only department where the majority of its scientists and engineers does not have anyone else provide input into their IDP.

The frequency of responses by job category indicates that scientists have a higher percentage of its community who have others provide input into their IDP than does the engineer community.

QUESTION 4
BY DEPARTMENT/JOB CATEGORY

FREQUENCY OF RESPONSES

DEPARTMENT/JOB CATEGORY

NO/YES RESPONSES
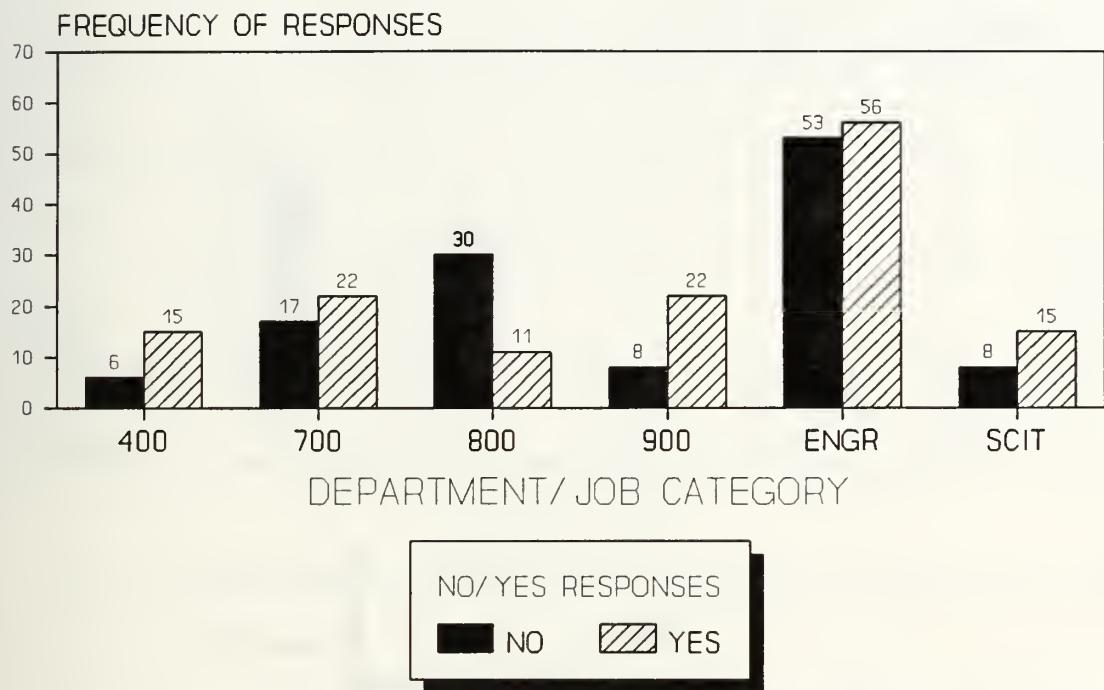
■ NO   ▧ YES

Figure 62

Figure 63 shows the frequency of responses for Question 4 by paygrade category. An analysis of the no/yes responses shows that the GS-11 paygrade category is the only group of engineers and scientists, other than the two GS-5s surveyed, who have a higher percentage of its members that does not have anyone else provide input into their IDP.

QUESTION 4
BY PAYGRADE

FREQUENCY OF RESPONSES
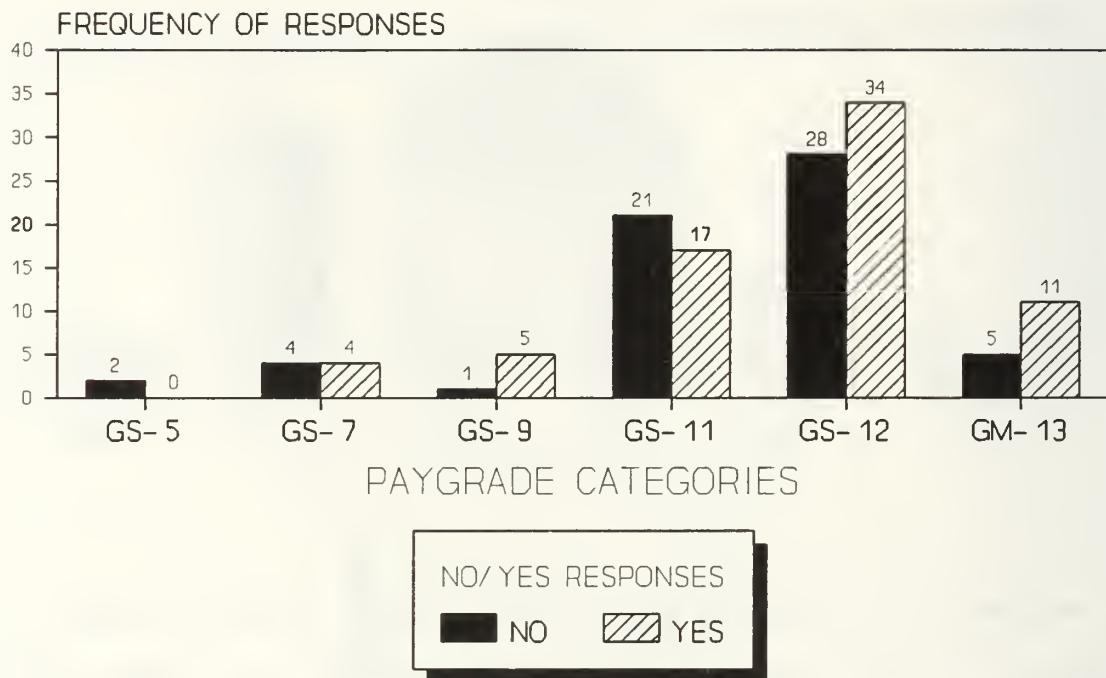
Figure 63

Table 2 shows the sources of those providing input into IDPs by department. Fifty percent of those who responded to the question said that their branch manager provided input into their IDP, 40% said their supervisor provided input, 7% said their mentor provided input, and two branch managers said their division director provided input into their IDP.

The comparison by department shows that 77% in Department 900 said that their branch manager provided the input, whereas 71% in Department 700 said that their supervisor provided the input.

TABLE 2.--SOURCES OF IDP INPUT, BY DEPARTMENT

Department Totals					
Input Source	Dept 800	Dept 800	Dept 800	Dept 900	Total
Branch Manager	7	4	7	17	35
Super- visor	7	15	3	3	28
Mentor	1	1	1	2	5
Div. Direc- tor	0	1	1	0	2
Input Totals	15	21	12	22	70

e. Question 5: What can be done to improve the IDP process?

Table 3 provides a list of the most common comments made by scientists and engineers on how to improve the IDP process.

TABLE 3.--COMMENTS ON HOW TO IMPROVE THE IDP PROCESS

Totals	Comments Made by the Total Sample Population
16	Need more information about available training.
11	Define req/tasks/structure/career tracks.
9	Make it mean something other than just an administrative task - use it, don't file it!
6	Emphasize its use/support.
6	Create a help desk/counseling service.
4	Make supervisor/management take more seriously.
4	Make its use consistent between departments.
3	Get managers and supervisors more involved.
3	Make it mandatory for all employees.
2	Advertise IDP!
2	Establish a follow-up after IDP is filed.
2	Don't make it so restrictive that you can take only certain courses.
2	Establish guidelines for its use.
2	Provide instruction on how to use it.
2	Train supervisors on IDP.
2	Need better format examples/sample IDP.
1	All managers/management should use them.
1	Need a better selection for training process.
1	Match IDP to budget.
1	Don't match IDP to budget.
1	Attend only training listed on IDP.
1	Allow attendance at training not on IDP.
1	Allow time off during day to attend class.
1	Better communication between management and employees.
1	Change branch manager and division director's attitudes.
1	Individual should control, not branch manager.

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f. *Question 6: Are you clear on what training you need for your career development?*

Figure 64 shows the frequency for all responses to Question 6. Only 53% of those surveyed said that they were clear on what training they needed for their career development.

QUESTION 6
ALL RESPONSES

NO 47%
68

YES 53%
77

Figure 64

Figure 65 shows the frequency of responses for Question 6 by department and job category. The analysis of department no/yes responses indicates that Department 900 is the only department which has a higher percentage of its scientists and engineers who are not clear on what training they need for their career development.

The comparison of responses for engineers and scientists shows that scientists are much more clear on training needed for their career development than are engineers.

QUESTION 6
BY DEPARTMENT/JOB CATEGORY
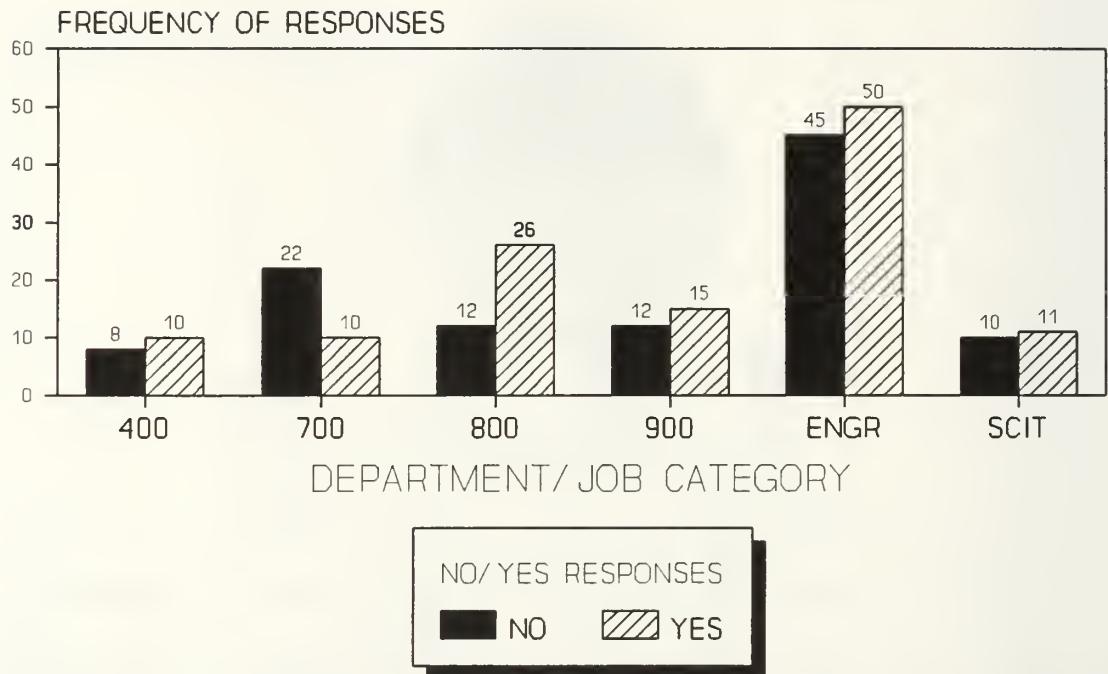
FREQUENCY OF RESPONSES

DEPARTMENTS/JOB CATEGORIES

NO/YES RESPONSES
NO YES
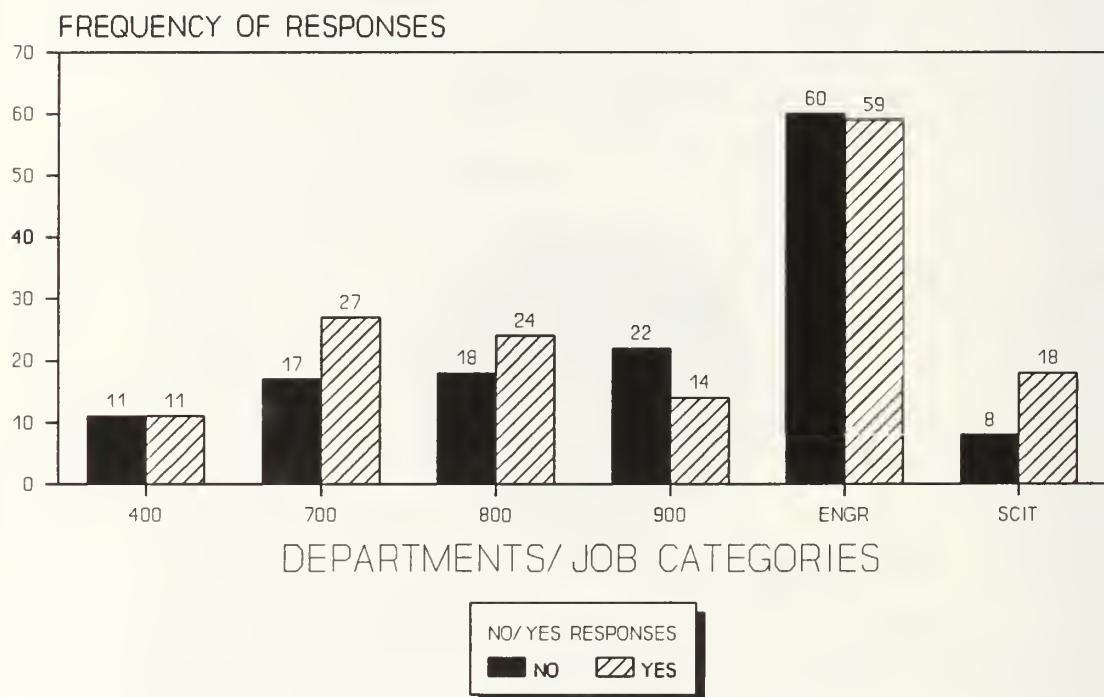
Figure 65

Figure 66 shows the frequency of responses for Question 6 by paygrade category. The GS-9 paygrade category is the only category which has a higher percentage of its scientists and engineers who are not clear on what training they need for their career development.

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QUESTION 6
BY PAYGRADE CATEGORY

FREQUENCY OF RESPONSES
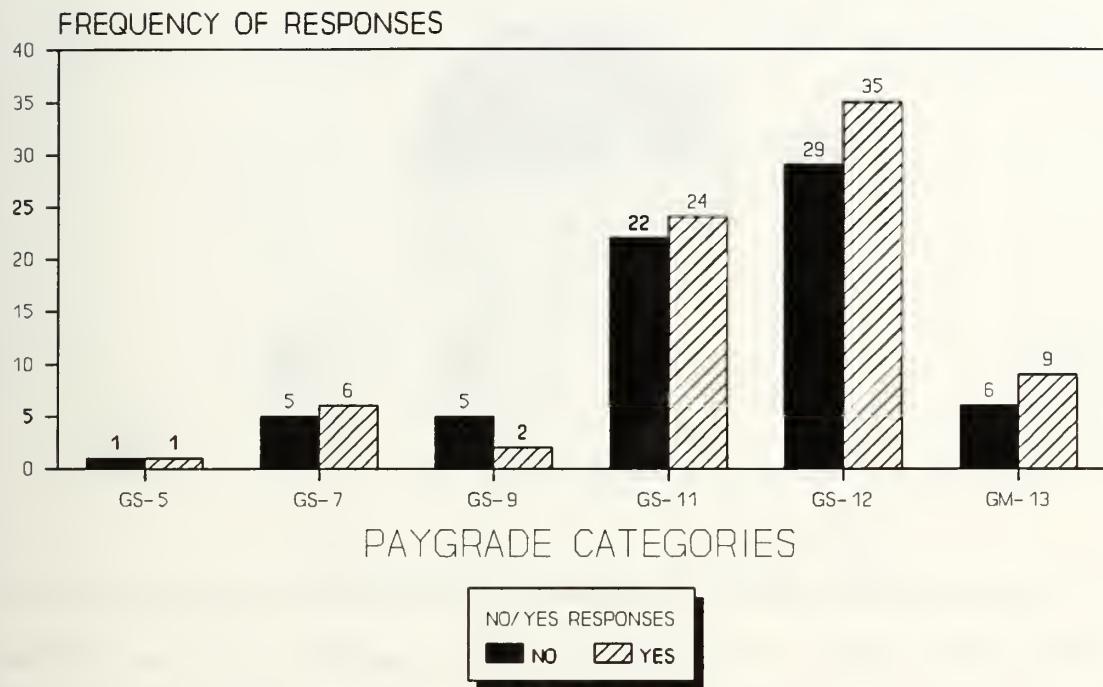
Figure 66

g. Question 7: If you answered "Yes" to the above question (#6), are you able to get the training you need for your career development?

Figure 67 shows the frequency for all responses to Question 7. Only 54% of those who responded to Question 7 said that they were able to get the training needed for their career development.

NO 46%
38

YES 54%
45

Figure 67

Figure 68 shows the freqency of responses for Question 7 by department and job category. The analysis of the no/yes responses by department shows that Department 800 is the only department which has a higher percentage of its scientists and engineers who are not able to get the training they need for their career development.

The comparison of no/yes responses by job category indicates that the scientist community has a higher percentage of its members who are able to get the training needed for their career development than the engineer community.

QUESTION 7
BY DEPARTMENT/JOB CATEGORY

FREQUENCY OF RESPONSES
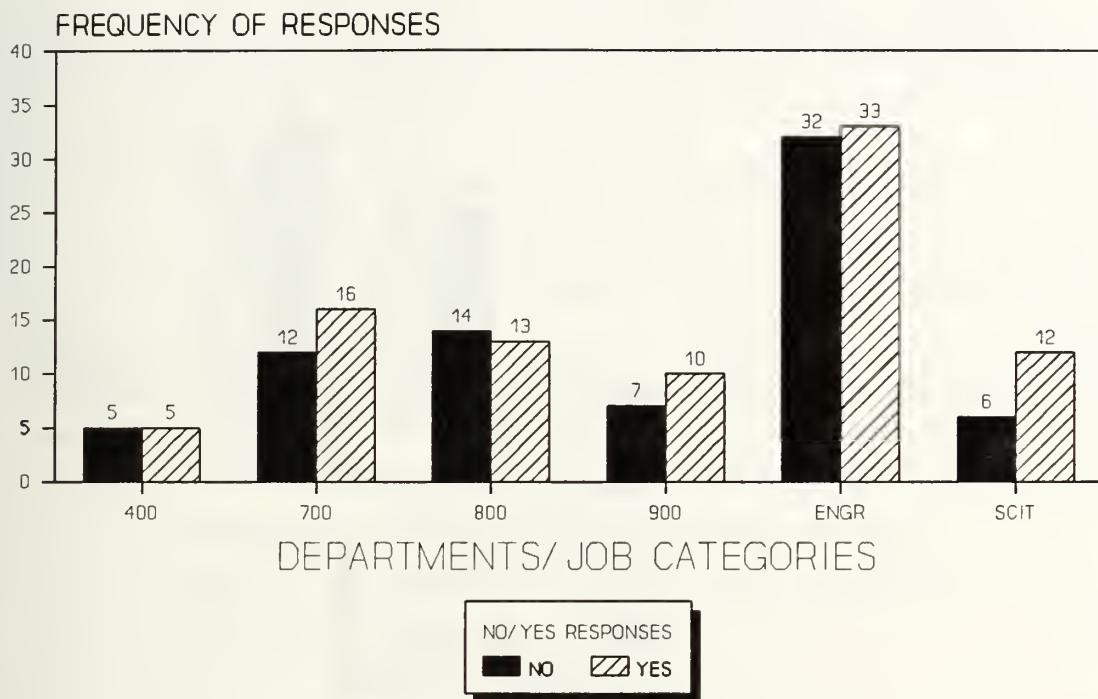
Figure 68

Figure 69 shows the frequency of responses for Question 7 by paygrade category. The no/yes responses for the GS-11 and GS-12 paygrade categories indicates that these paygrades have a higher percentage of their members who are not able to get the training needed for their career development than the other paygrade categories.

QUESTION 7
BY PAYGRADE CATEGORY

FREQUENCY OF RESPONSES
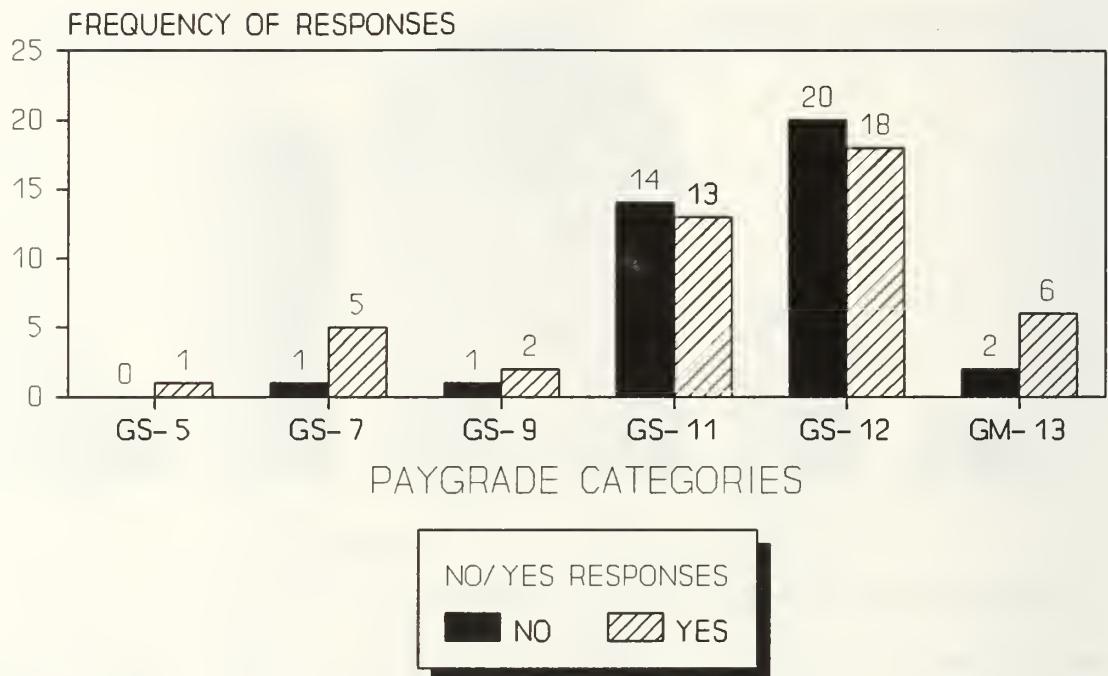
Figure 69

h. Question 8: If you answered "No" to the above question (#7), why are you not able to get the training you need for your career development?

Table 4 lists the reasons given by engineers and scientists for not being able to get the training needed for their career development.

TABLE 4.--REASONS GIVEN FOR NOT GETTING DEVELOPMENT TRAINING

Totals	Comments Given by Scientists and Engineers
29	No money/budget constraints.
10	Don't know about available classes or what courses are required.
8	Courses are not offered.
8	No career path defined.
4	Information on available classes is not available or not forwarded.
4	The selection process/low on priority list.
3	My workload.
3	System set up so that you must be a manager or in MDP to get training.
2	Courses not available at convenient times.
2	Guidance from supervisor/branch manager.
2	People are ahead of me/priority ranking.
1	Someone already selected.
1	Not on IDP.
1	Must be GS-12 for management training.
1	Technical people are not thought of as highly as managers.
4	Too shallow courses for technical careers.
1	Only 40 hours allocated per year.
1	Don't know how to apply for.
1	Not encouraged by my branch manager.
1	Professional discrimination and jealousy.

i. Question 9:   Have you ever enrolled in a NAC-sponsored training course, but not completed it?

Figure 70 shows the frequency for all responses for Question 9. Only 12% of those surveyed said that they had not completed a NAC-sponsored training course. There were no trends observed among the training courses respondents listed as having not completed. Of those who responded yes, no two courses were listed more than once as not having been completed.

QUESTION 9
ALL RESPONSES

NO 88%
130

YES 12%
17

Figure 70

j. *Question 10:* **Have you earned a master's degree through a NAC-sponsored advanced degree program?**

Figure 71 shows the frequency of all responses for Question 10. Six percent of those surveyed said they had earned a master's degree through a NAC-sponsored advanced degree program.

QUESTION 10
ALL RESPONSES

NO 94%
138

YES 6%
9
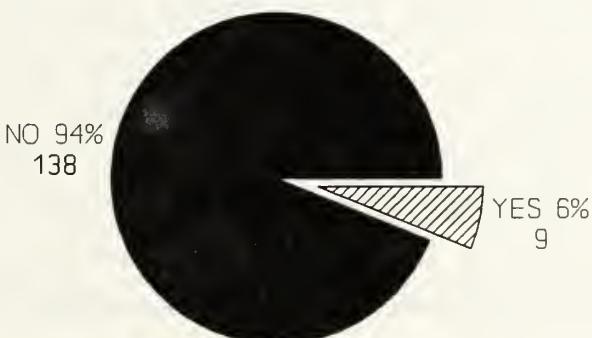
Figure 71

k. *Question 11:* **Which of the following best describes your plans or goals for formal graduate-level education?**

The following categories are used in the survey for engineers and scientists to respond to:

a. I do not plan to pursue a degree, but I will probably take graduate-level courses.

b. I plan to earn a master's degree.

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c.   I plan to earn a Ph.D.

d.   I have no plans or goals for graduate-level education.

e.   I have already earned the advanced degree I want.

Figure 72 shows the frequency of all responses for Question 11. Thirty-two percent of those surveyed said they planned to earn a master's degree, 28% said they did not, but would take graduate-level courses, 25% said they had no plans or goals for graduate-level education, 11% said they had already earned the advanced degree they wanted, and 4% said they planned to earn a Ph.D.

QUESTION 11
ALL RESPONSES

(FREQUENCY OF RESPONSE)
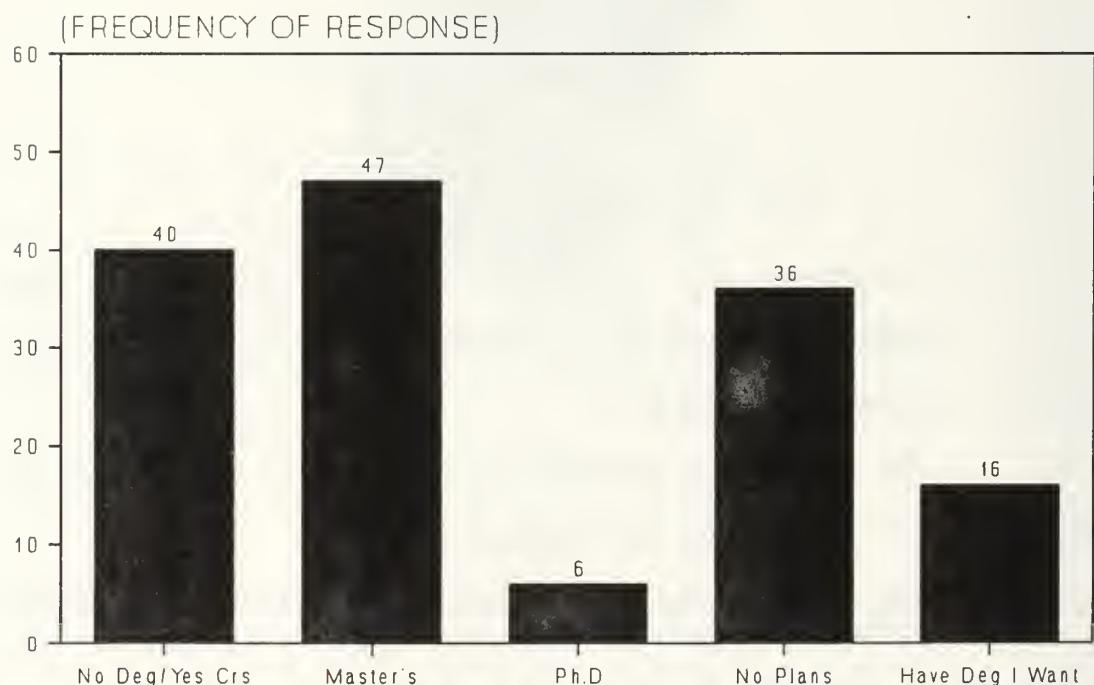
Figure 72

1. *Question 12: If you circled {a} to the above*
   question (#11), please list why you do not plan to
   pursue a degree.

Table 5 provides the list of reasons scientists and
engineers gave for why they do not plan to pursue a degree.

TABLE 5.--REASONS GIVEN FOR NOT PURSUING A DEGREE

Totals	Comments of Scientists and Engineers
10	No time to devote to earning an advanced degree.
7	No benefit/reward at NAC to earn an advanced degree.
7	No real value for me in another degree.
6	Family contraints.
2	Not in career plans/does not support career goals.
1	Does not satisfy job requirements.
1	The advanced degree I need is not available in the area.

m. *Question 13: If you circled {b} to question #11,*
   please list the type of master's degree and why.

Table 6 lists the reasons given by scientists and
engineers for pursuing a master's degree. Most respondents to
the question did not list the type of master's degree so this
information is not included in the table.

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TABLE 6.--REASONS GIVEN FOR PURSUING A MASTER'S DEGREE

Totals	Comments of Scientists and Engineers
10	Material has applications at NAC.
10	I want to be an expert in my field.
8	To move up the management ladder.
8	To further my career.
3	The material is interesting.
8	To stay competitive in the job market.
1	To get more involved in management side of engineering.
1	For versatility.
1	To better myself.

n. Question 14:   If you circled {c} to question #11, please list the type of PH.D and why.

Table 7 provides the list of reasons scientists and engineers gave for pursuing a Ph.D. Most respondents did not list the type of Ph.D so this information is not included in the table.

TABLE 7.--REASONS GIVEN FOR PURSUING A PH.D.

Totals	Comments of Scientists and Engineers
2	To be an expert in my field.
1	To find new and better ways of doing things.
1	To have more flexibility in evaluating new materials.
1	To train others.

o. *Question 15: If you circled {d} to question #11,
   please list why you have no plans or goals for
   graduate-level education.*

Table 8 provides the list of reasons given why
scientists and engineers have no plans or goals for graduate-
level education.

TABLE 8.--REASONS GIVEN FOR HAVING NO PLANS OR GOALS

Totals	Comments of Scientists and Engineers
12	I do not have the time to invest.
9	There is no benefit/reward at NAC.
6	It would not help NAC or me.
4	Burned-out!
9	I do not want to invest the time.
2	It will not help my career.
2	I am too old.
2	I am too close to retirement.
1	Career development courses are more useful.
1	I do not like stressful situations.
1	I just have no immediate plans.

p. *Question 16: If you have not applied for any NAC-
   sponsored training courses, what are the
   reason(s)?*

Figure 73 shows the frequency of all responses for
Question 16. The most common response given is that there are
no rewards/benefits at NAC for taking courses.   This is

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followed by time it would take me away from my family and job. The next two most common reasons are college "burn-out" and personal motivation. The next two most common reasons are the location of the training courses and the monetary costs. The last three most common reasons given are the quality of instruction, the belief that job experience is more important than NAC-sponsored training, and that they can not decide what training courses they need.

QUESTION 16
ALL RESPONSES

FREQUENCY OF RESPONSES

26	23	12	10	10	9	9	8	8	7
NO REW	FTIME	JTIME	MOT	BURN-OUT	LOC	COST	INST	EXP	NEEDS?

MOST IMPORTANT REASONS

Figure 73

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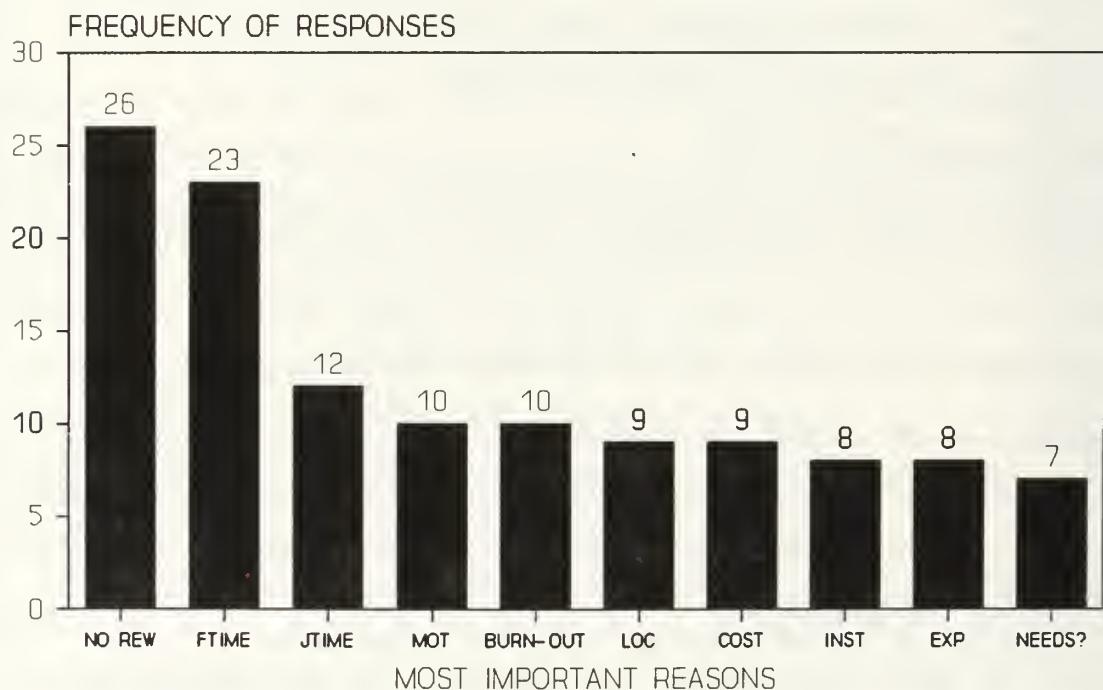
3. Support For Training

a. Question 1: What is the extent to which NAC makes training courses available for you?

The following availability categories for Question 1 are included in the survey for scientists and engineers to respond to:

a. I can take all the courses I require or want.

b. I can take most of the courses I require.

c. I have to compete with others for the courses that I receive.

d. NAC provides only minimum training availability for me.

e. NAC does not make training courses available for me.

f. Other (please specify)

Figure 74 shows the frequency of all responses for Question 1. Thirty-nine percent of those surveyed said that they can take most of the courses they require, 30% said that they must compete with others for the courses that they receive, 10% said that NAC provides only minimum training availability for them, 7% said that they could take all the courses they require or want, and only 2% said that NAC does not make training courses available for them. Twelve percent listed "Other" and the majority specified that they had not applied for or received any NAC-sponsored training.

QUESTION 1
ALL RESPONSES
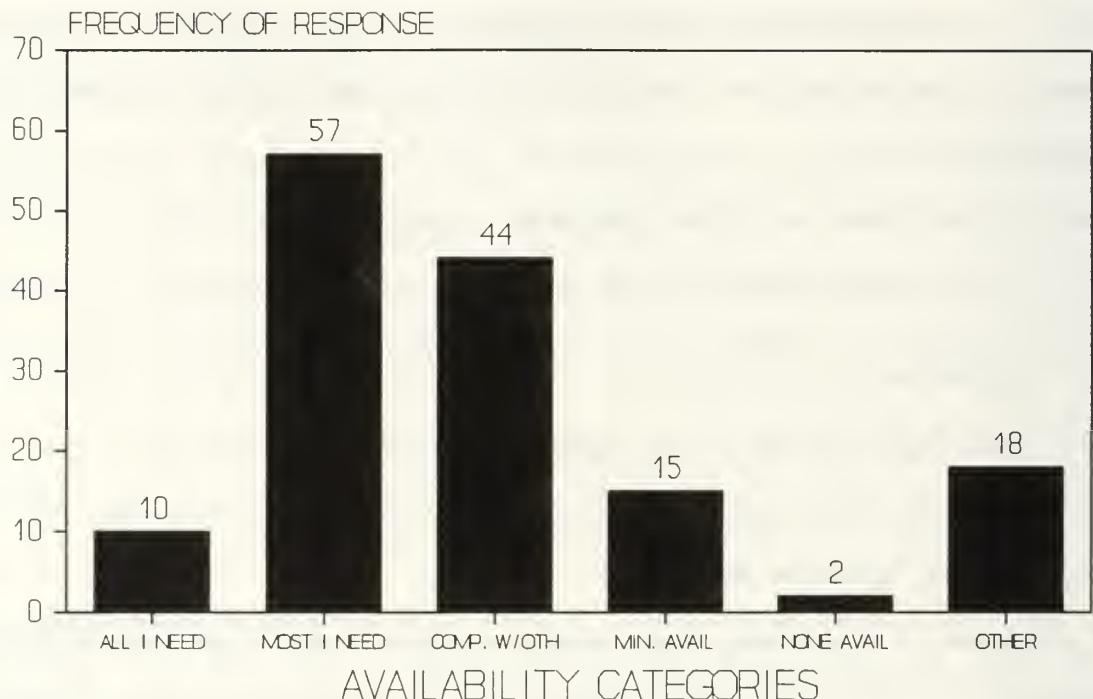
Figure 74

Figure 75 shows the frequency of response for Question 1 by Department 400. Thirty-eight percent of those surveyed in Department 400 said that they could take most or all the courses they wanted, 29% said they had to compete with others for the training they needed, and 19% said there was none or minimal availability of training courses for them. The remaining 14% said they had not applied for any NAC-sponsored training.

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QUESTION 1
DEPARTMENT 400

(FREQUENCY OF RESPONSE)

TRAINING AVAILABILITY CATEGORIES
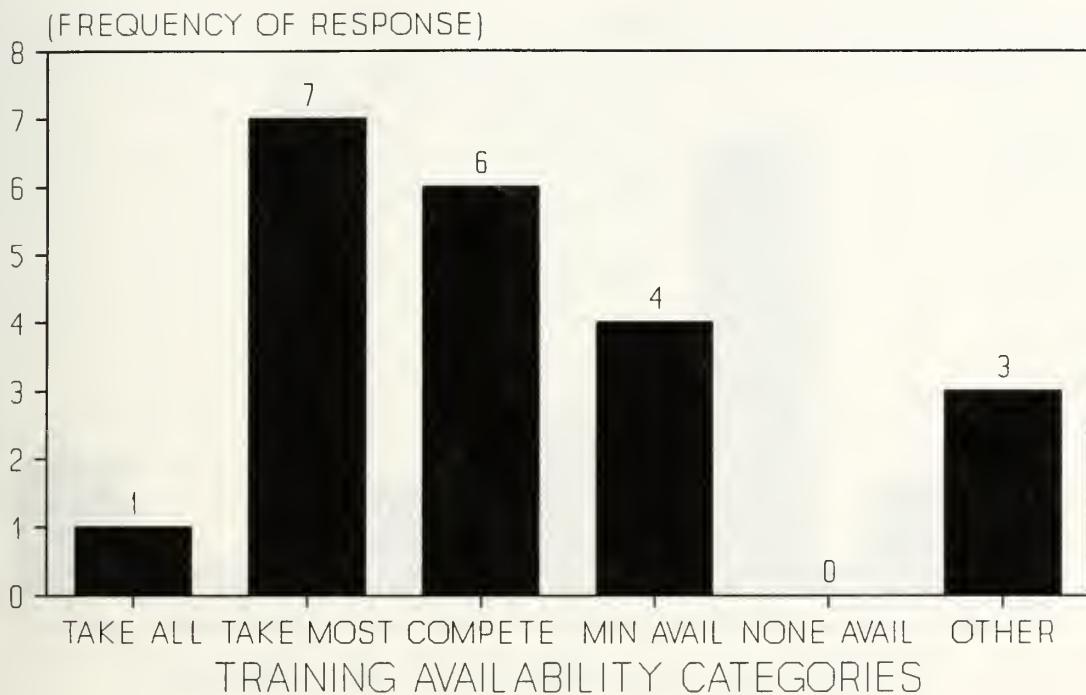
Figure 75

Figure 76 shows the frequency of response for Question 1 by Department 700. Fifty-seven percent of those in Department 700 surveyed said that they could take most or all of the courses they wanted, 17% said they had to compete with others for the courses they needed, and 13% said that there were none or minimal availability of training courses for them. The remaining 13% had not applied for any NAC-sponsored training courses.

QUESTION 1
DEPARTMENT 700
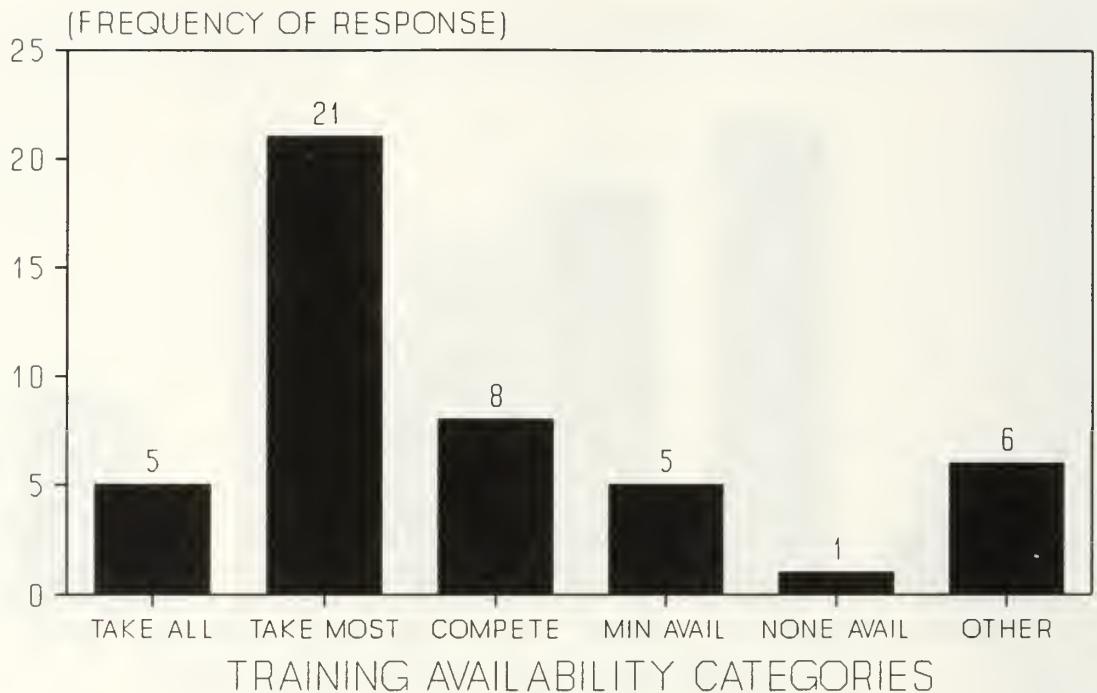
Figure 76

Figure 77 shows the frequency of response for Question 1 by Department 800. Forty-five percent of those surveyed in Department 800 said that they could get all or most of the training courses they needed, 29% said they had to compete with others for the courses they needed, and 9% said that there were none or minimal availability of training courses for them. The remaining 17% had not applied for any NAC-sponsored training courses.

QUESTION 1
DEPARTMENT 800

(FREQUENCY OF RESPONSE)
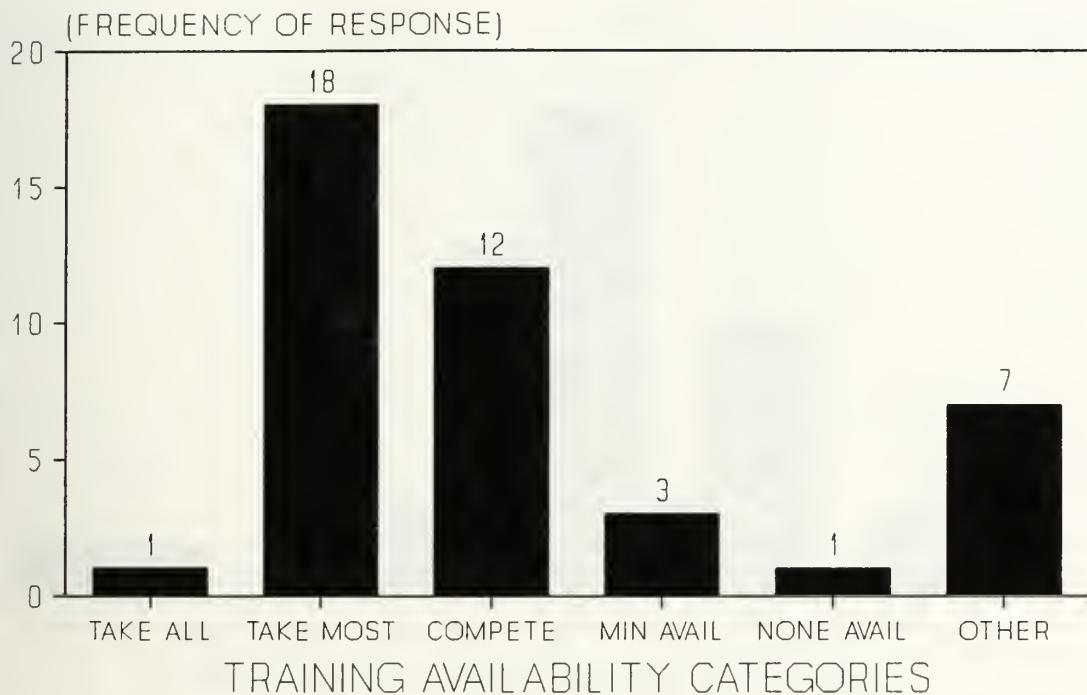
Figure 77

Figure 78 shows the frequency of response for Question 1 by Department 900. Fifty percent of those surveyed in Department 900 said that they compete with others to get the training courses they need, 36% said they could get all or most of the training courses they needed, and 8% said that there were none or minimal availability of training courses for them. The remaining 6% had not applied for any NAC-sponsored training courses.

QUESTION 1
DEPARTMENT 900
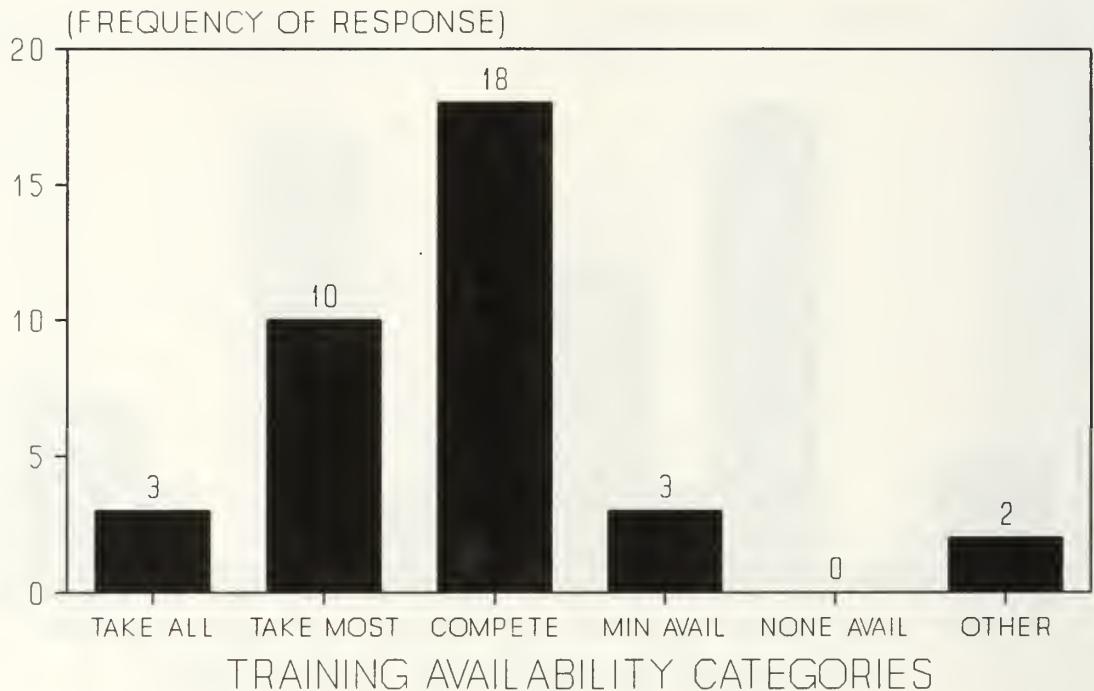
Figure 78

Figure 79 shows the frequency of response for Question 1 by the engineer community. Forty-five percent of the engineers surveyed said that they could get all or most of the training courses they needed, 33% said they had to compete with others for the courses they needed, and 10% said that there were none or minimal availability of training courses for them.

QUESTION 1
ENGINEERS

(FREQUENCY OF RESPONSE)
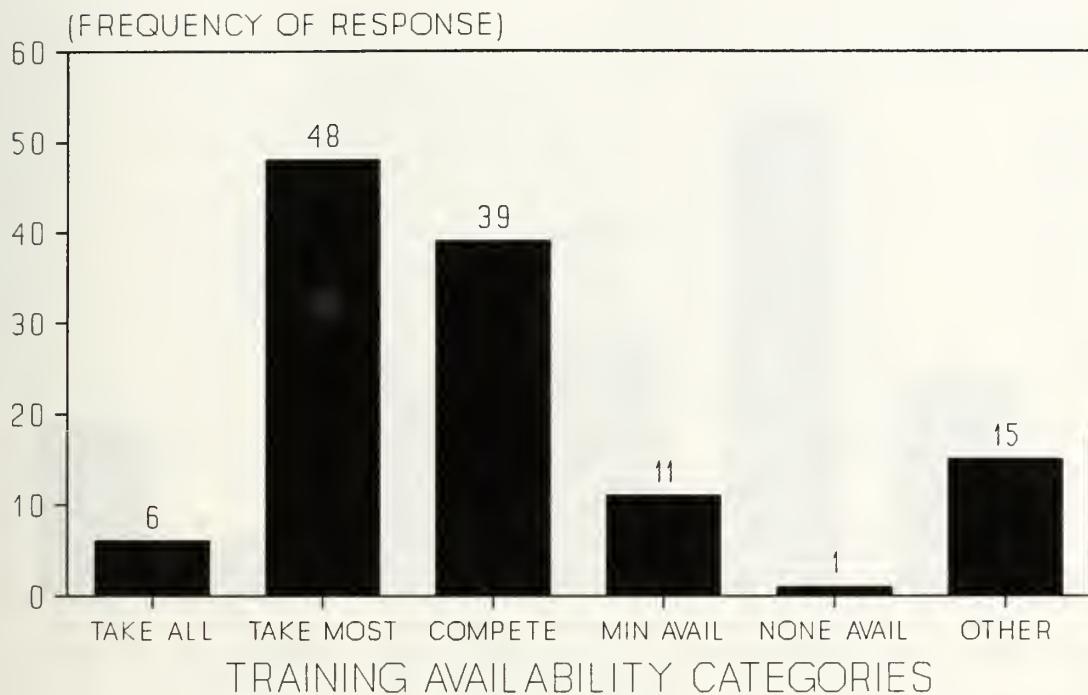
Figure 79

Figure 80 shows the frequency of response for Question 1 by the scientist community. Fifty percent of the scientists surveyed said that they could get all or most of the training courses they needed, 19% said they had to compete with others for the courses they needed, and 19% said there were none or minimal availability of courses for them. The remaining 12% had not applied for any NAC-sponsored training courses.

QUESTION 1
SCIENTISTS
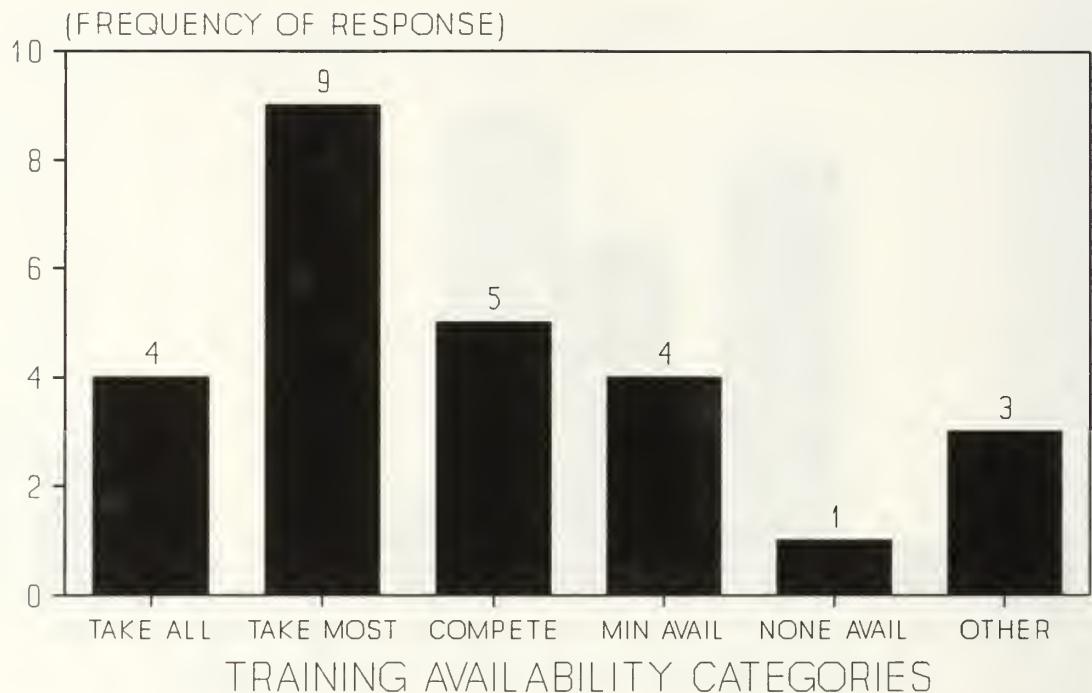
Figure 80

b. *Question 2: Have you ever been denied approval for attendance at NAC-sponsored training courses? If so, how often and for what reasons?*

Figure 81 shows the frequency for all responses to Question 2. Fifty-six percent of those surveyed said that they had been denied approval for attendance at NAC sponsored training courses, 41% said they had not, and 3% said that they had never applied for any courses.

QUESTION 2
ALL RESPONSES

No
56%

Have Not Applied
3%

Yes
41%
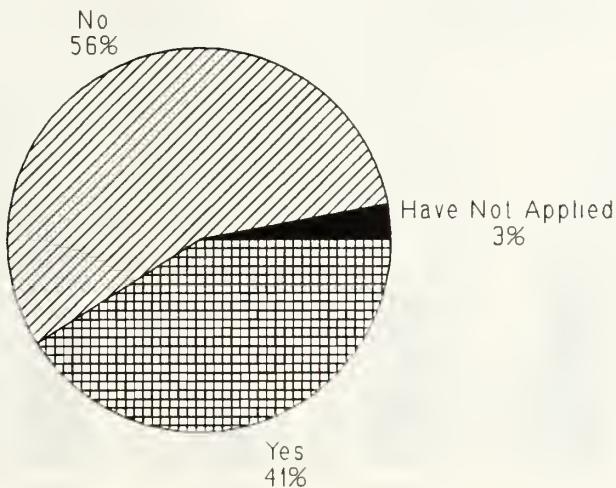
Figure 81

Figure 82 shows the frequency of responses for Question 2 by department and job category. The comparison of the no/yes responses by department indicates that Department 700 is the only department who has a higher percentage of its engineers and scientists who have never been denied approval for attendance at NAC-sponsored training courses.

The analysis of no/yes responses by job category shows that the majority of scientists have never been denied approval for NAC-sponsored training, whereas, a majority of engineers have been denied approval.

QUESTION 2
BY DEPT/JOB CATEGORY

(FREQUENCY OF RESPONSE)

RESPONSE BY DEPARTMENT/JOB CATEGORY

NO/YES RESPONSE
NO   YES
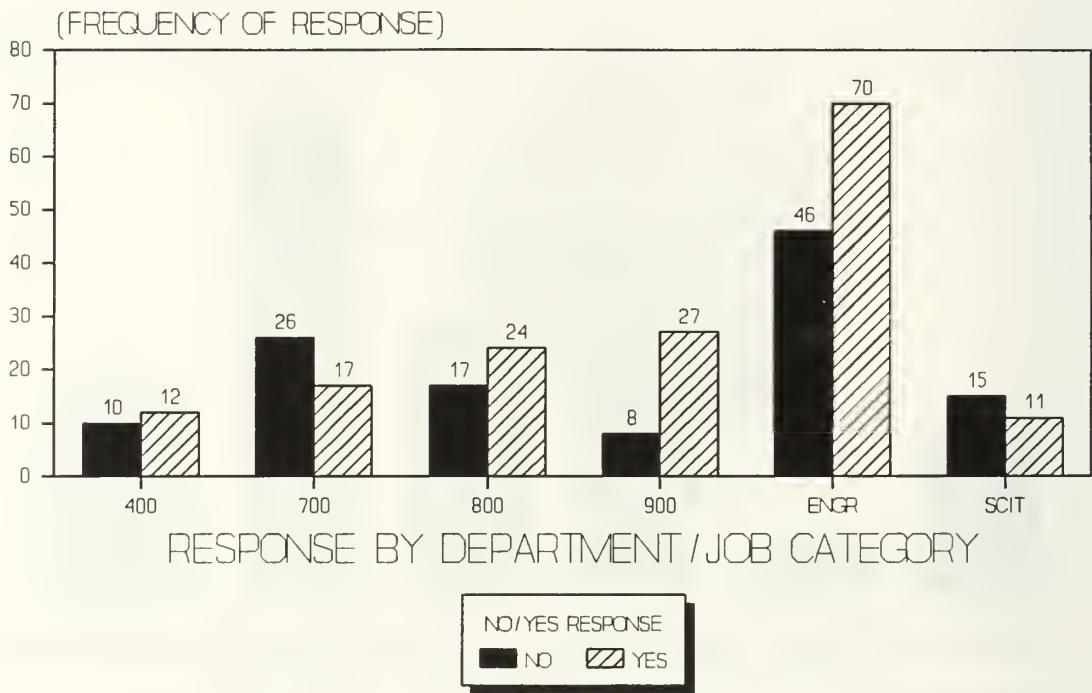
Figure 82

Figure 83 shows the frequency of response for Question 2 by paygrade category. The comparison of no/yes responses for the paygrade categories indicates that the GS-7 paygrade category is the only one in which the majority of its members have not been denied approval for attendance at NAC-sponsored training courses.

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QUESTION 2
BY PAYGRADE CATEGORY
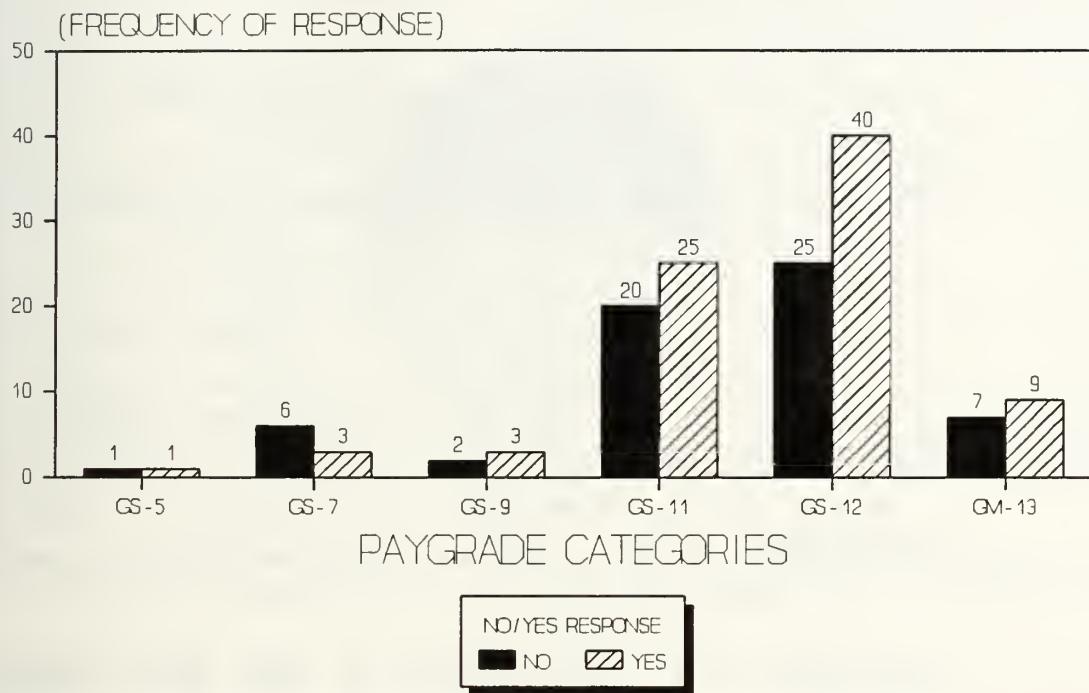
Figure 83

Table 9 shows the list of reasons given by scientists and engineers for having been denied approval for attendance at NAC-sponsored training courses.

TABLE 9.--REASONS GIVEN FOR BEING DENIED APPROVAL FOR TRAINING

Totals	Comments by Scientists and Engineers
28	There was no money in the budget.
23	The class was full.
10	I was never told why!
8	I was told I was low on the priority list.
8	I was told it was not job related.
6	My branch manager told me I could not attend.
5	I was told my workload would not allow me to attend.
3	I was told I had taken all my training hours for that year.
1	I was told it was unfair to others who have not had as much training.
1	I was told that because of its location I could not attend.

c. *Question 3:* **Does anyone at NAC have greater access to NAC-sponsored training than others?**

Figure 84 shows the frequency for all responses to Question 3. The responses to Question 3 are almost evenly split with a slight majority saying that there are others at NAC who have greater access to NAC-sponsored training than others.

NO 49%

YES 51%

Figure 84

Figure 85 shows the frequency of responses to Question 3 by department and job category. The comparison of no/yes responses by department indicates that Department 800 is the only department who has a majority of its scientists and engineers who do not believe that anyone else at NAC has greater access to NAC-sponsored training than others.

The analysis of no/yes responses by job category shows that a majority of scientists believe that there are people at NAC who do have greater access to training than others, whereas, a slight majority of engineers believe that no one group at NAC has greater access to NAC-sponsored training than others.

QUESTION 3
BY DEPT/JOB CATEGORY
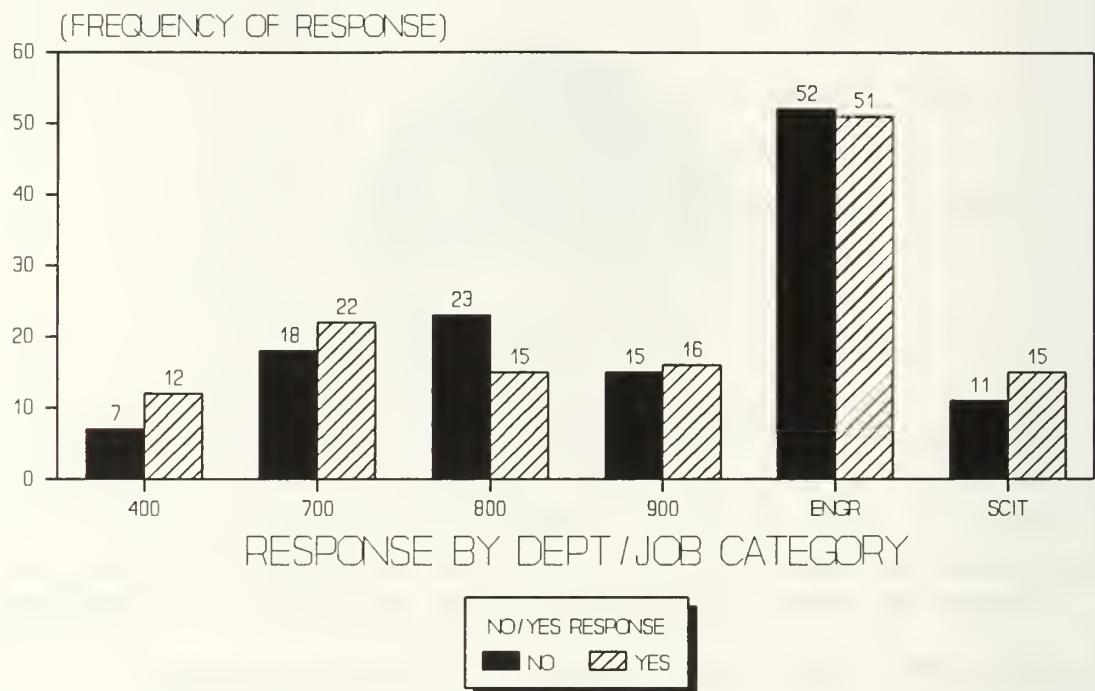
Figure 85

Figure 86 shows the frequency of response for Question 3 by paygrade category. The comparison of no/yes responses indicates that a majority of GS-9s and managers (GM-13) believe that there are groups at NAC which have greater access to NAC-sponsored training than others. The other paygrade categories either have a slight majority who say there are no other groups with greater access or are evenly split on the question.

QUESTION 3
BY PAYGRADE CATEGORY

(FREQUENCY OF RESPONSE)

RESPONSE BY PAYGRADE CATEGORY

NO/YES RESPONSE
NO YES
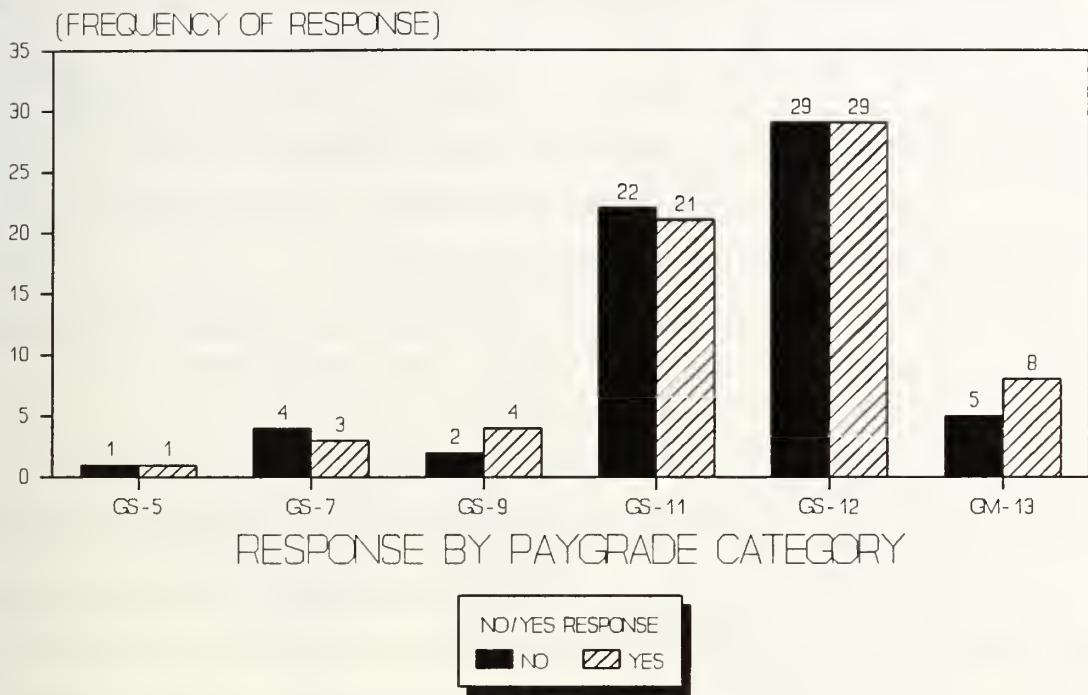
Figure 86

Table 10 provides the list of groups or individuals who were described by engineers and scientists as having greater access to NAC-sponsored training than others.

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TABLE 10.--GREATER ACCESS TO TRAINING LIST

Totals	Comments by Scientists and Engineers
14	Management has greater access than others.
13	Management Development Program participants.
6	Departments 800 & 900 have greater access.
5	Those with greater access to class schedules.
6	Supervisory personnel have greater access.
3	Employees who managers want to be advanced.
2	Engineers have greater access.
2	Divisions with more available training info.
2	Engineers/professionals have advantage over technicians/wage grade.
2	People who have less to do have more time for training.
1	Engineers/scientists over assembly floor workers.
1	Project Engineers.
1	Brown-noses.
1	Engineers, what's left over goes to support staff.
1	Easier to get training in 800 versus 900.
1	Department 250.
1	People pegged for management.
1	Managers in Department 200.
1	Minorities.
1	Those being "groomed" for higher positions.
1	Those who have seniority/higher GS levels.
1	Department 500.
1	A person whose branch manager values training.
1	The group that we call "special."
1	Women/female "fast-trackers."

d. *Question 4:   How do you feel about the following statements?*

The following scale is used in the survey for engineers and scientists to respond to the statements:

- SD--I strongly disagree with the statement
- D--I disagree with the statement, but not strongly so
- N--I am neutral toward the statement
- A--I agree with the statement, but not strongly so
- SA--I strongly agree with the statement

(1) *Question 4-A Statement: My duties and responsibilities in my current job prevent my attendance at NAC-sponsored training courses.*

Figure 87 shows the frequency of all responses to Question 4-A.   Sixty-one percent of those surveyed were inclined to disagree with the statement to some extent, 23% were inclined to agree with the statement, and 16% were neutral toward the statement. These percentages indicate that almost one out of every four survey participants believe that their duties and responsibilities in their current job prevents their attendance at NAC-sponsored training.

QUESTION 4-A
ALL RESPONSES

(FREQUENCY OF RESPONSES)

Figure 87

Figure 88 shows the average responses to Question 4-A by the total sample population, department, job category, gender, and ethnicity. The average response for the total sample population indicates that they disagree with the statement, but not strongly so.

The comparison of average responses by department shows that Department 400 is inclined to disagree the most with the statement among all the departments. Department 900 is inclined to disagree to a lesser extent with the statement than the other departments.

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The analysis of average responses by job category shows that the engineer community is inclined to disagree with the statement more so than the scientist community.

There is very little difference among the opinions expressed by males and females to Question 4-A. Both groups are very close to the average response of the total sample population.

The comparison of the average responses by ethnic groups shows that the Hispanic ethnic group is the only ethnic group which in inclined to agree with the statement. This indicates that the Hispanic group tends to believe that their duties and responsibilities do prevent attendance at NAC-sponsored training. Of the remaining ethnic groups, the average response of the Asian ethnic group shows that this ethnic group is inclined to disagree with the statement the most of any ethnic group.

QUESTION 4-A
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 88

Figure 89 shows the average responses to Question 4-A by paygrade category, marital status, and experience at NAC. The average response by paygrade category indicates that members in the GS-7 paygrade category are inclined to disagree with the statement more so than any other paygrade category. With the exception of the two GS-5s surveyed, the highest average response for Question 4-A is the GS-9 paygrade category. This category only slightly disagrees with the statement and is very close to being neutral toward the statement.

There is no difference of opinion between single or married respondents.

The comparison of average responses by work experience at NAC indicates that those engineers and scientists who have between six and ten years of service are less inclined to disagree with the statement than any other NAC experience category.

QUESTION 4-A
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
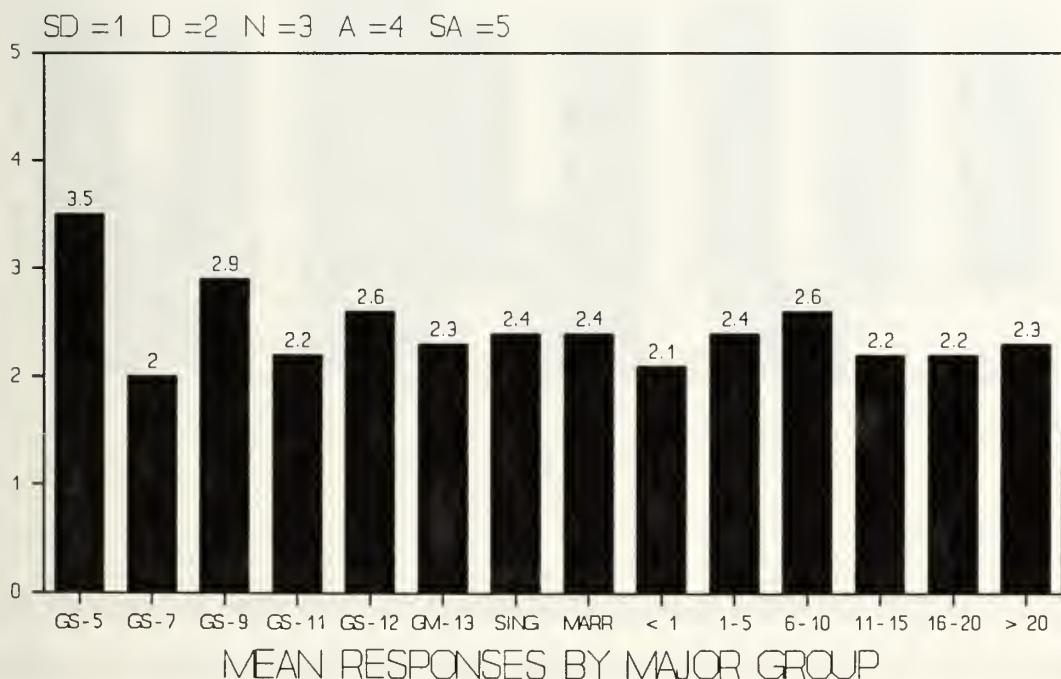
Figure 89

Figure 90 shows the average response to Question 4-A by age group category. There is very little difference of

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opinion to Question 4-A between any of the age group
categories.

QUESTION 4-A
BY AGE CATEGORY

SD = 1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
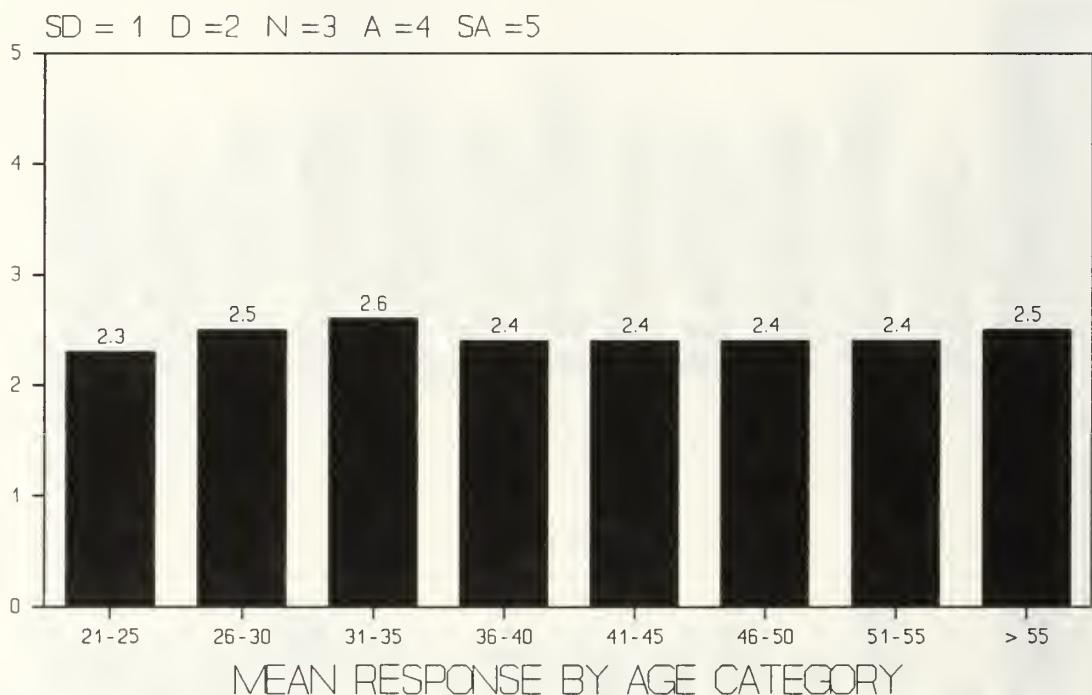
Figure 90

*(2) Question 4-B Statement: My supervisor often
selects for courses those people who can be "spared" rather
than those who might benefit most.*

Figure 91 shows the frequency of all responses
to Question 4-B. Sixty-five percent of those surveyed

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disagreed to some extent with the statement, 25% were neutral
toward the statement, and the remaining 10% agreed with the
statement to some extent.

QUESTION 4-B
ALL RESPONSES

(FREQUENCY OF RESPONSES)

Figure 91

Figure 92 shows the average responses for Question 4-B by
the total sample population, department, job category, gender,
and ethnicity.   The average response of the total sample
population indicates that they are inclined to disagree with
the statement, but not strongly so.

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The comparison of the average responses by department shows that there is very little difference of opinion among the four departments. The average response for Department 700 indicates that this department is inclined to disagree with the statement slightly more so than the other departments.

There is very little difference between the opinions of engineers or scientists to Question 4-B.

The average response by gender indicates that females are inclined to disagree with the statement more so than males do.

The analysis of ethnic group average responses shows that the Asian and Hispanic ethnic groups are inclined to disagree less with the statement than the White and Black ethnic groups.

QUESTION 4-B
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

SD = 1 D = 2 N = 3 A = 4 SA = 5

MEAN RESPONSES BY MAJOR GROUP

Figure 92

Figure 93 shows the average responses for Question 4-B by paygrade category, marital status, and work experience at NAC. The comparison of the average responses by paygrade category shows that managers (GM-13) disagree with the statement the most of any of the paygrade categories. Since managers are supervisors, this response was expected.

There is very little difference of opinion between single or married respondents to Question 4-B. Both group's average response is very close to the average response of the total sample population.

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The average responses of the NAC work experience categories shows that, in general, the more work experience at NAC, the more scientists and engineers disagree with the statement.

QUESTION 4-B
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
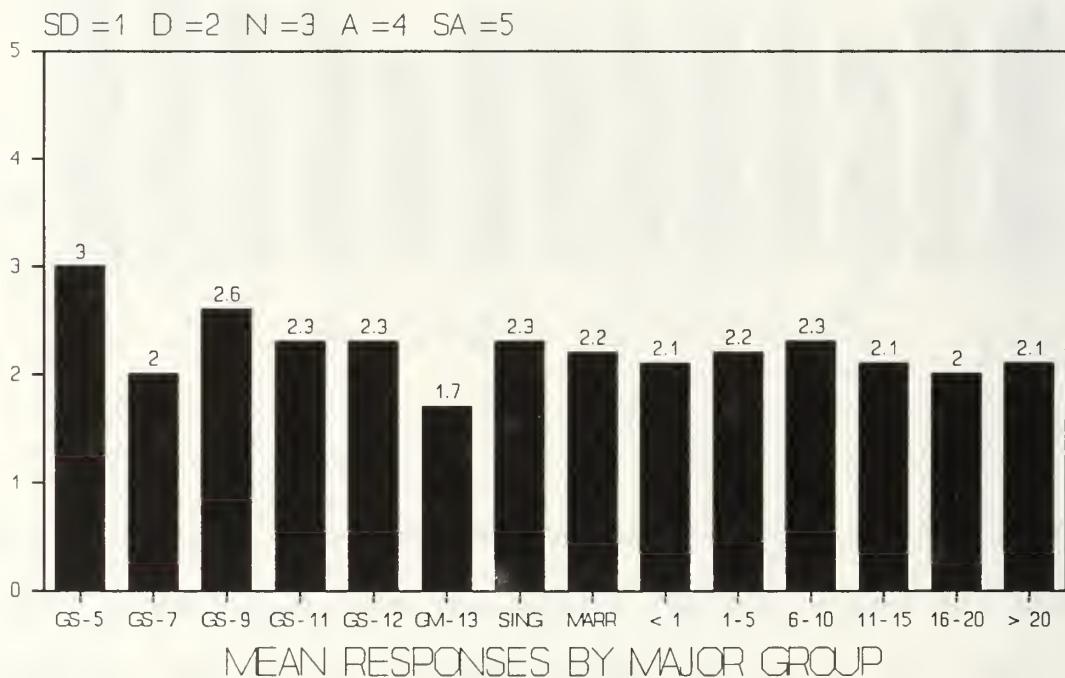
Figure 93

Figure 94 shows the average response to Question 4-B by age group category. With the exception of the 41-45 year old age group, there is very little difference between the opinions of the various age groups to Question 4-B. The average response for the 41-45 year old age group indicates

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they this group disagrees with the statement more so than the other age group categories.

QUESTION 4-B
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
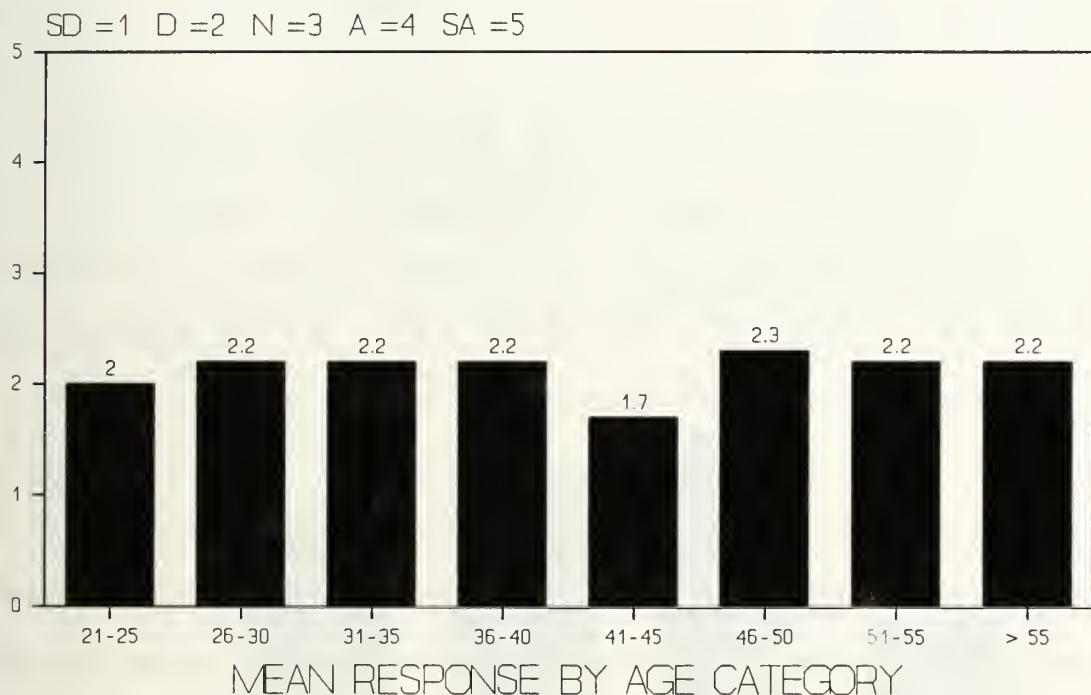
Figure 94

(3) Question 4-C Statement: The availability of training at NAC was an important factor in my decision to work at NAC.

Figure 95 shows the frequency of all responses to Question 4-C. Forty-four percent of those surveyed were

inclined to disagree with the statement to some extent, 31%
were inclined to agree with the statement, and 25% were
neutral toward the statement. These percentages indicate that
approximately one out of every three employees surveyed were
influenced to come to work at NAC in part by the availability
of training at the Naval Avionics Center.

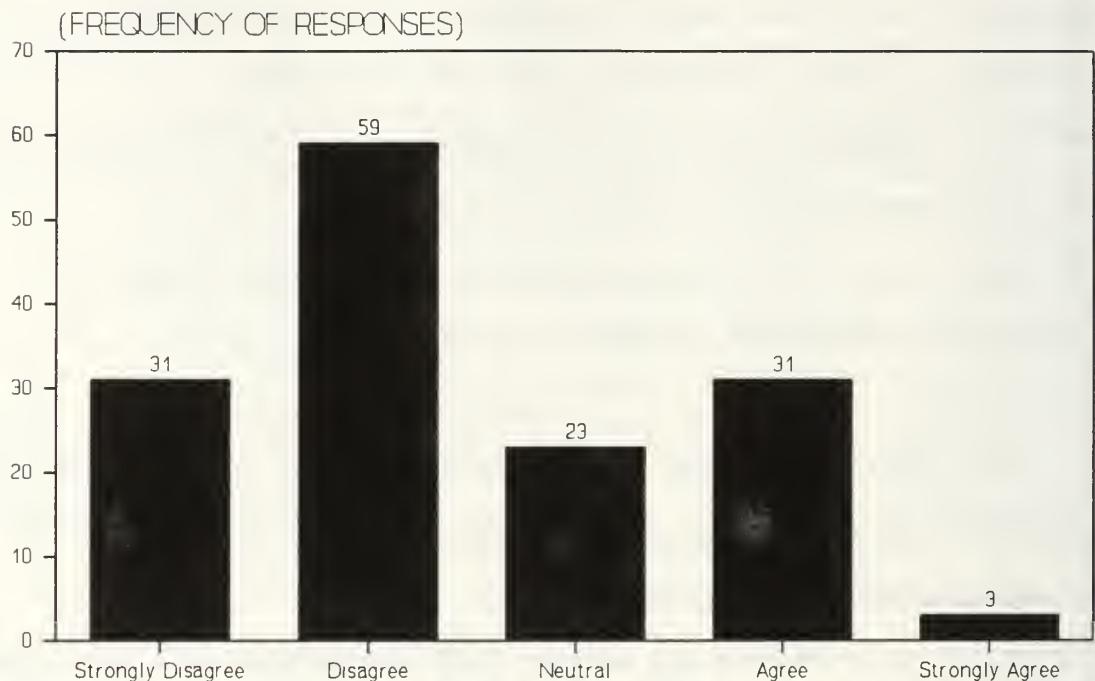## QUESTION 4-C
ALL RESPONSES

(FREQUENCY OF RESPONSES)
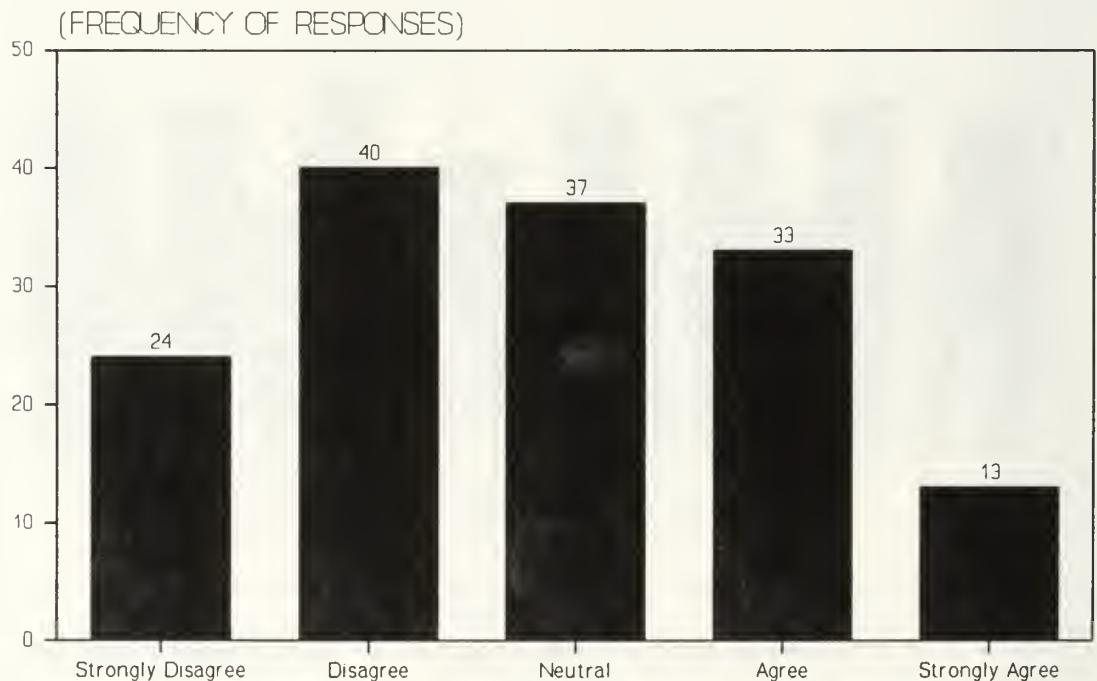
Figure 95

Figure 96 shows the average responses for Question 4-C by
the total sample population, department, job category, gender,
and ethnicity. The average response for the total sample

population indicates that the sample population is inclined to disagree slightly with the statement.

The comparison of the average responses by department shows that only Department 700 engineers and scientists tend to agree with the statement. This indicates that Department 700 engineers and scientists were, on average, influenced to work at NAC by the availability of training opportunities at NAC.

The average responses by job category indicates that the scientist community is inclined to agree with the statement, whereas the engineer community is inclined to disagree with the statement.

There is very little difference between the opinions of males and females regarding Question 4-C.

The comparison of average responses by ethnic groups shows that only the Hispanic ethnic group is inclined to agree with the statement. The Black ethnic group is inclined to disagree with the statement to a considerable extent more than the average response of the total sample population.

QUESTION 4-C
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

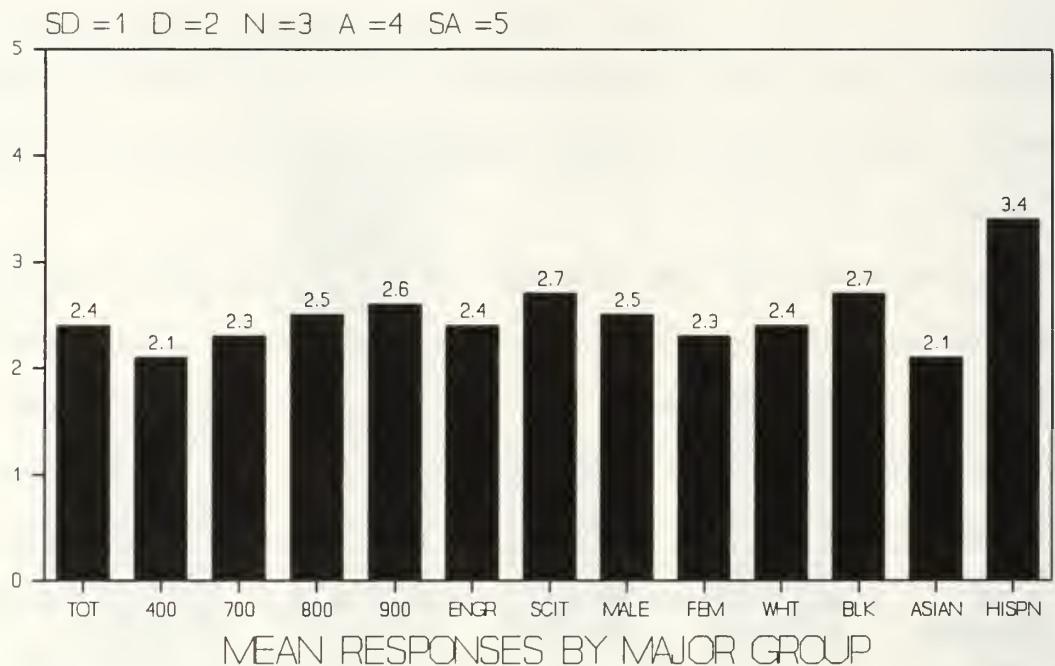SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
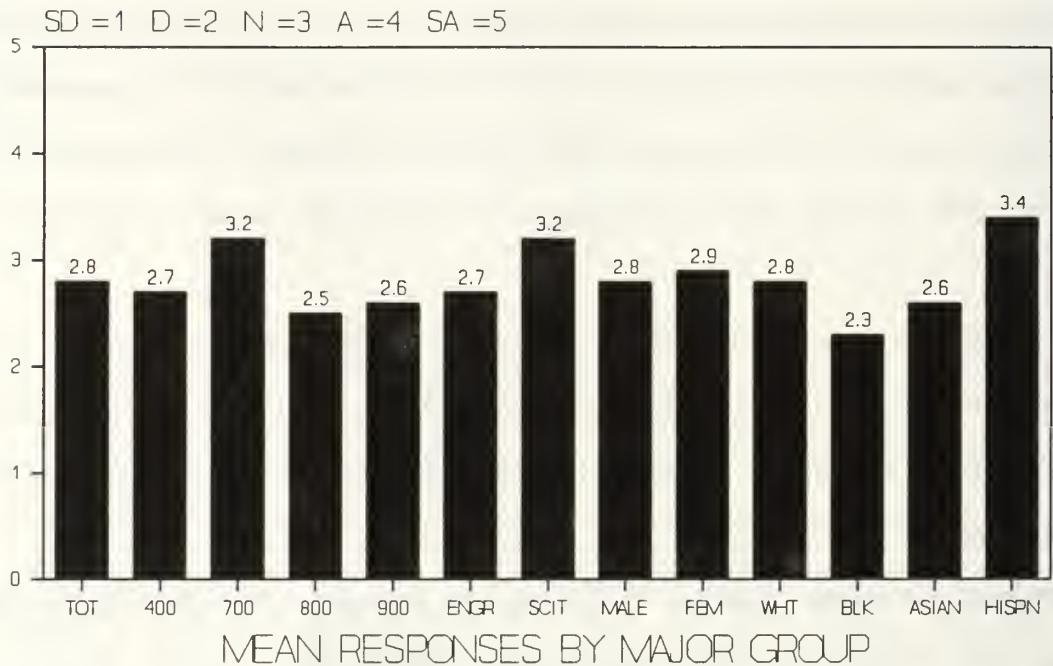
Figure 96

Figure 97 shows the average responses to Question 4-C by paygrade category, marital status, and work experience at NAC. The comparison of paygrade category average responses indicates that the lower paygrade categories (GS-05, GS-7, GS-9) are inclined to agree with the statement that the availability of training at NAC was an important factor in their decision to work at NAC, whereas the average responses of the higher paygrades (GS-11, GS-12, GM-13) indicates that these paygrades are inclined to disagree with the statement.

There is no difference between the opinions of single or married respondents.

The average responses of experience at NAC categories indicates that the < one year experience at NAC category is the only one which is inclined to agree with the statement.

QUESTION 4-C
BY PAYGRADE / MARITAL STATUS / EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
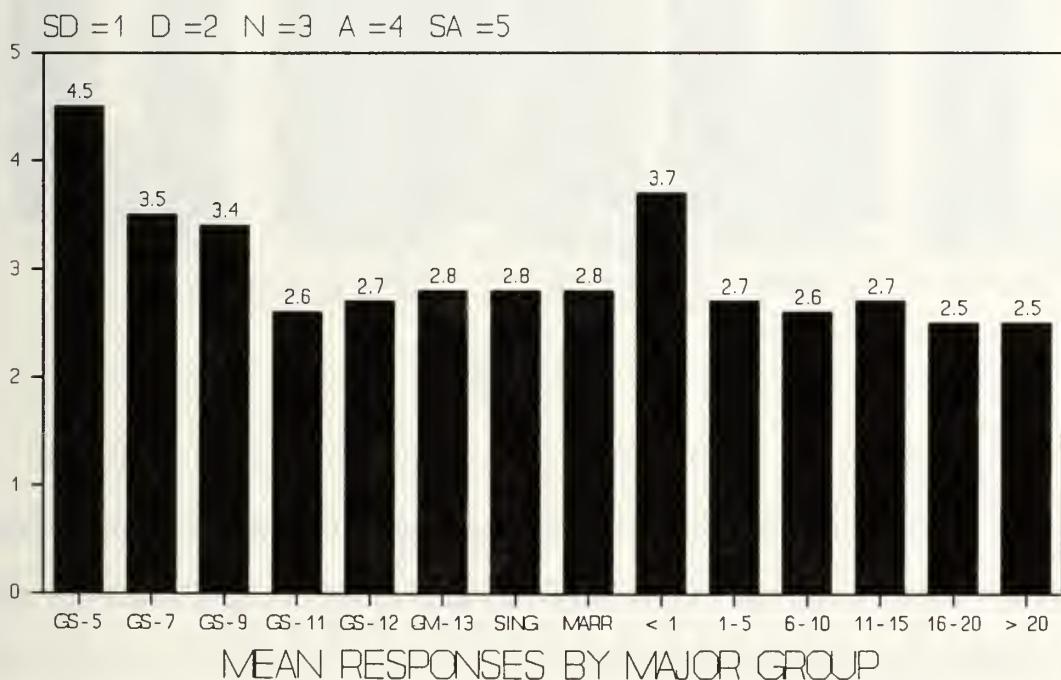
Figure 97

Figure 98 shows the average response to Question 4-C by age category. The average response of the 21-25 year old age group indicates that this group is the only age group which is inclined to agree with the statement.

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QUESTION 4-C
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
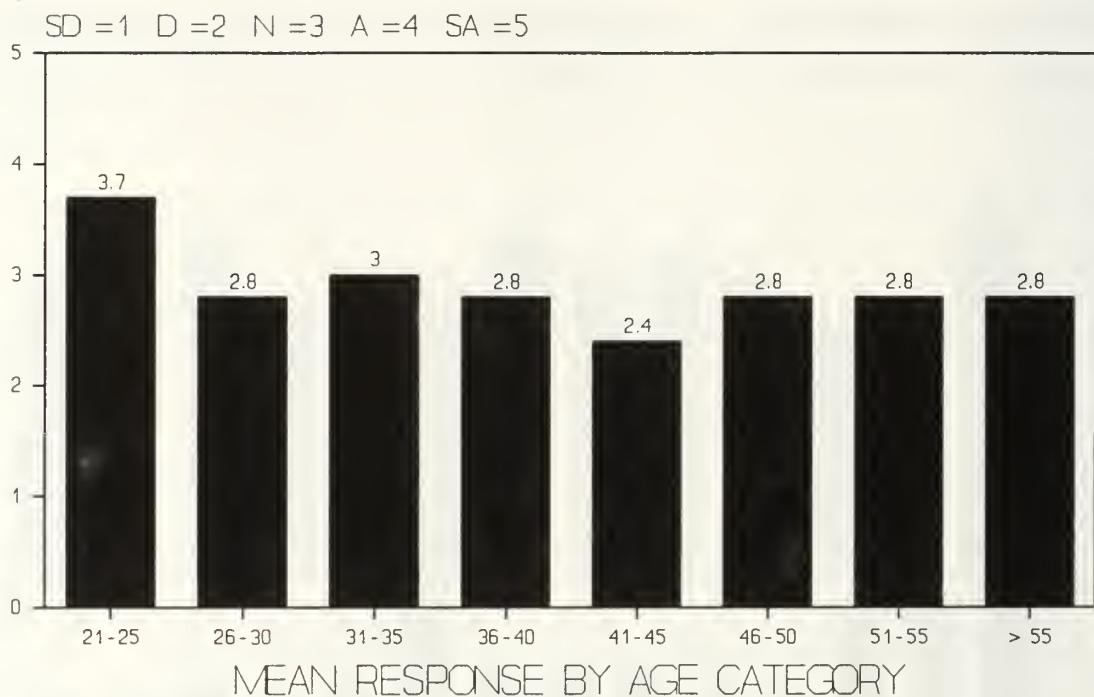
Figure 98

(4) *Question 4-D Statement: My supervisor feels that my duties at NAC take precedence over attendance at NAC-sponsored training courses.*

Figure 99 shows the frequency of all responses to Question 4-D. Over half of the respondents surveyed said that they disagree to some extent with the statement, 31% were neutral toward the statement, and 18% were inclined to agree to some extent with the statement.

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QUESTION 4-D
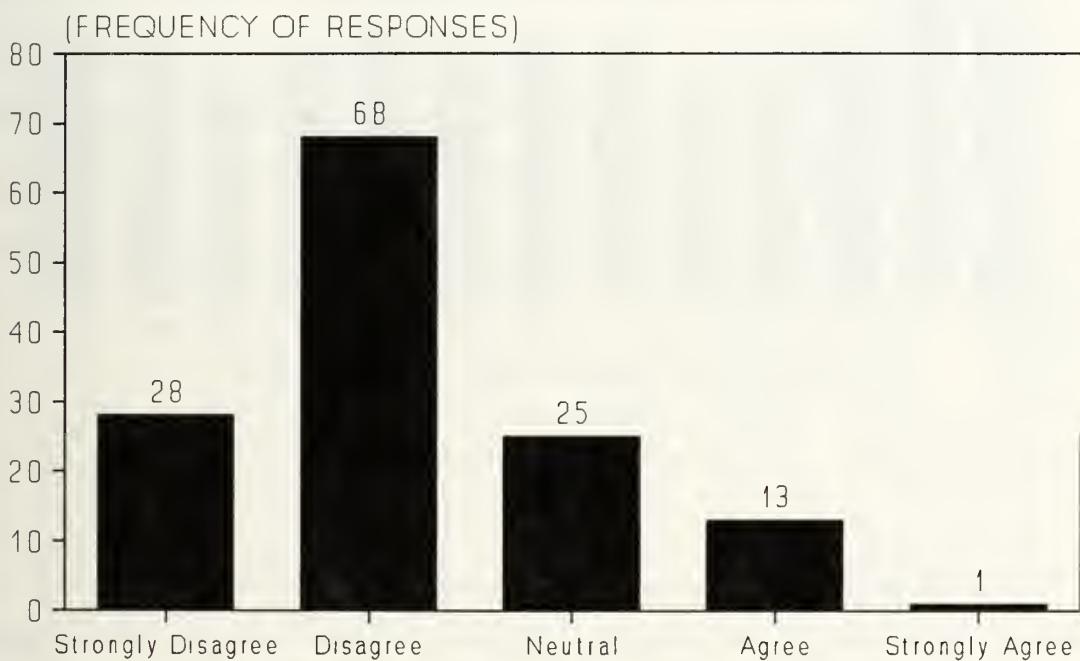## ALL RESPONSES

(FREQUENCY OF RESPONSE)
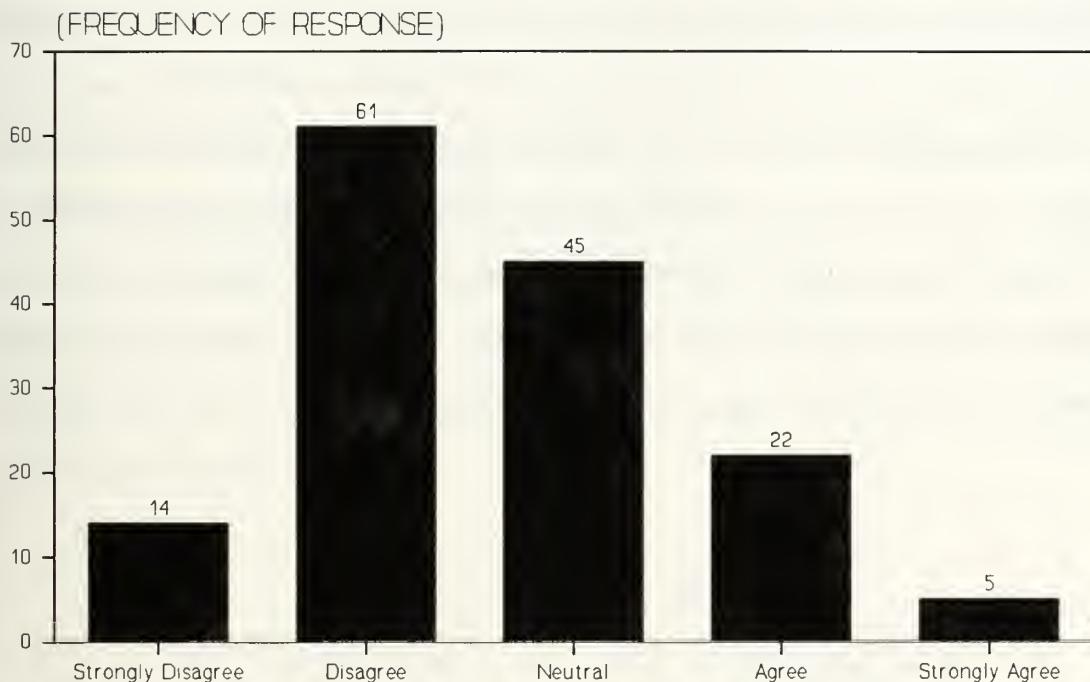
Figure 99

Figure 100 shows the average responses to Question 4-D by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to disagree with the statement, but only slightly so.

The comparison of average responses by department shows that Department 900 is inclined to be neutral toward the statement, whereas the other departments are inclined to disagree with the statement.

There is very little difference between the opinions of scientists and engineers with respect to Question 4-D.

The average response by gender indicates that females are inclined to disagree with the statement more so than males are.

The comparison of average responses by ethnicity shows that the Hispanic ethnic group is the only one which is inclined to agree with the statement. The Asian ethnic group disagrees with the statement more so than any other ethnic group.

QUESTION 4-D
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

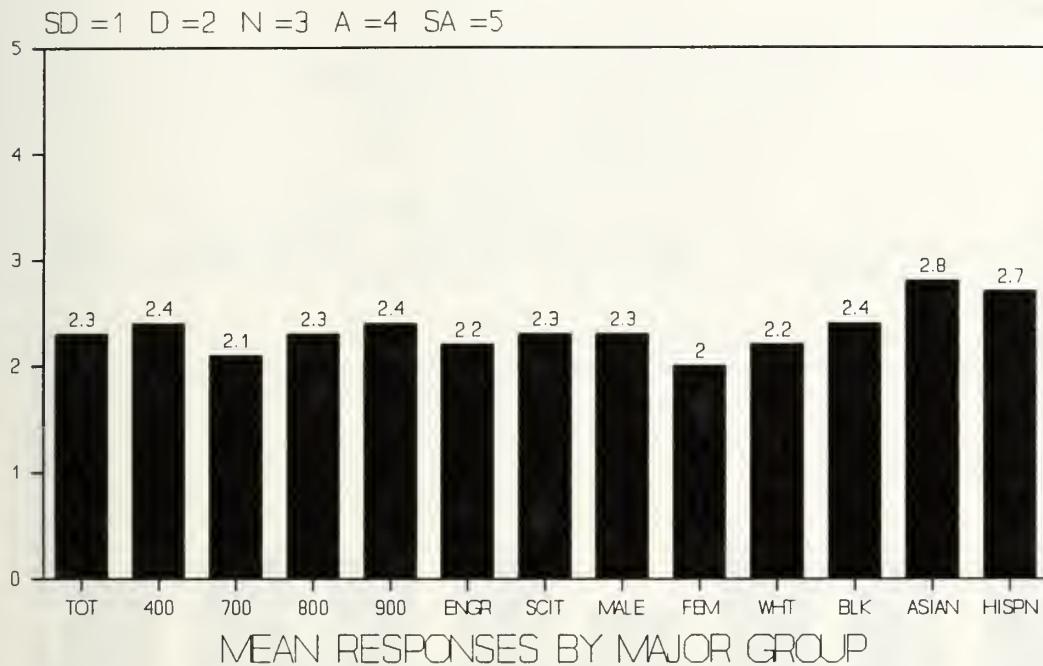SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
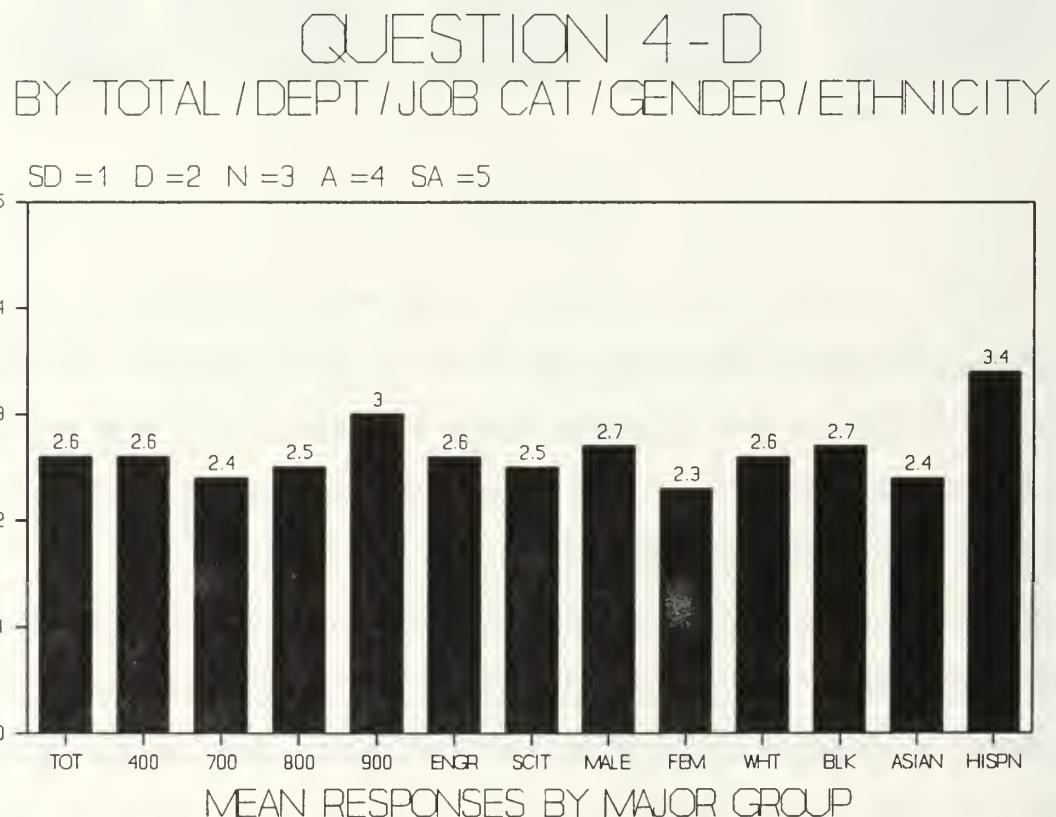
Figure 100

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Figure 101 shows the average responses to Question 4-D by paygrade category, marital status, and work experience at NAC. The comparison of average responses by paygrade categories indicates that the managers (GM-13) are inclined to disagree with the statement more so than any other paygrade group.

There is very little difference of opinion between single or married respondents towards Question 4-D.

The average responses of the work experience at NAC categories shows that the 16-20 year experience group disagrees with the statement more strongly so that any other experience group.

QUESTION 4-D
BY PAYGRADE / MARITAL STATUS / EXPERIENCE
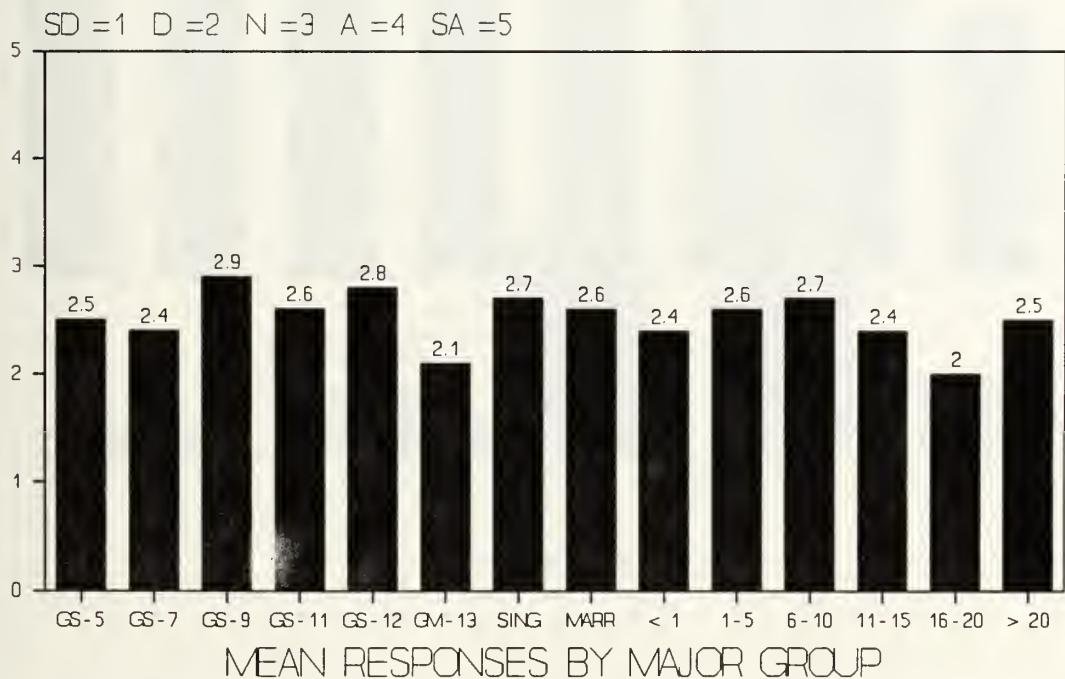
Figure 101

Figure 102 shows the average response to Question 4-D by age group category. There is very little difference of opinion among the age groups toward Question 4-D, although the 21-25 year old age group disagrees slightly more so with the question than the other age groups.

QUESTION 4-D
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
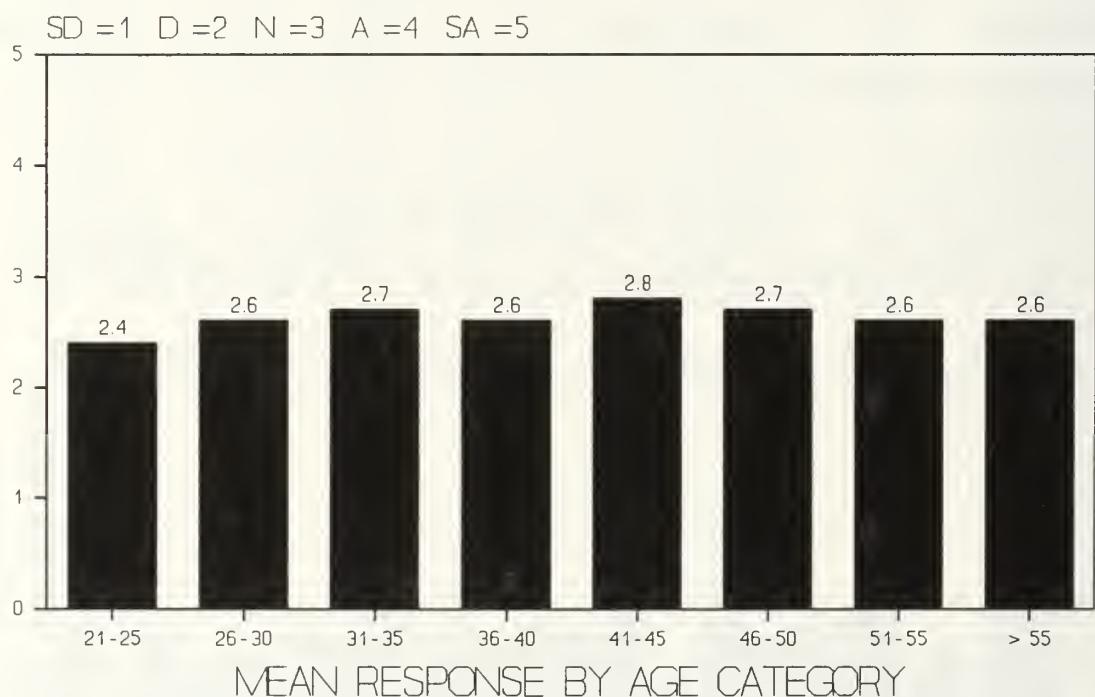
Figure 102

(5) Question 4-E Statement: My supervisor encourages attendance at NAC-sponsored training courses.

Figure 103 shows the frequency of all responses for Question 4-E. Sixty-five percent of the respondents surveyed said that they agree to some extent with the statement, 25% were neutral toward the statement, and only 10% were inclined to disagree to some extent with the statement.

QUESTION 4-E
ALL RESPONSES

(FREQUENCY OF RESPONSE)

			82	

Strongly Disagree: 4
Disagree: 11
Neutral: 37
Agree: 82
Strongly Agree: 13
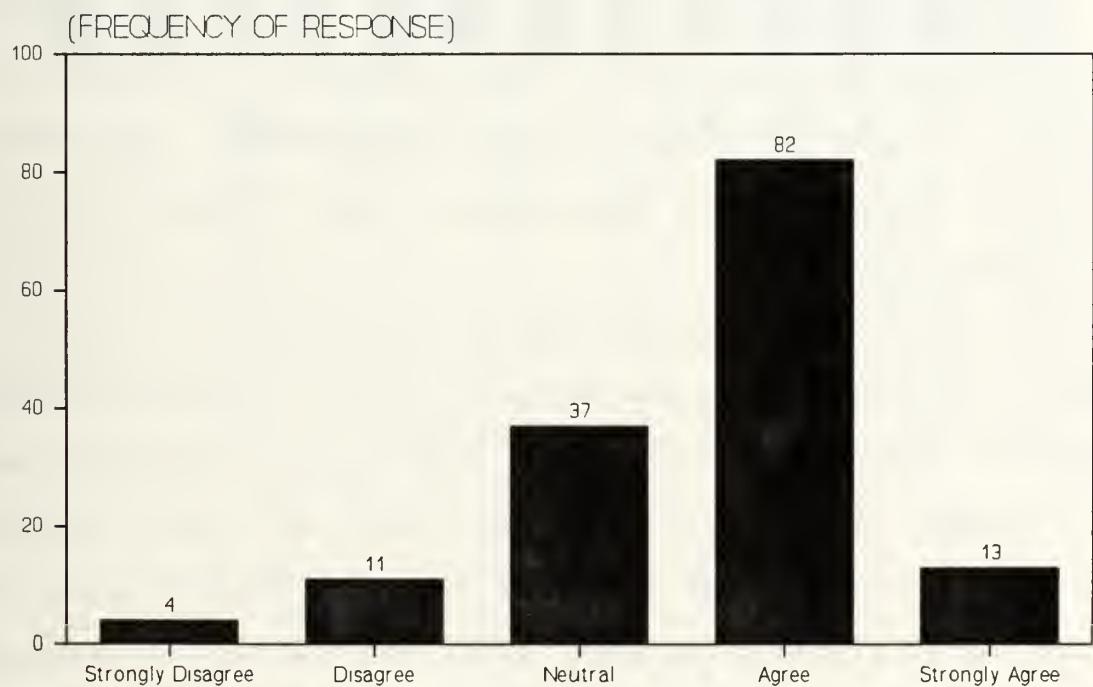
Figure 103

Figure 104 shows the average responses for Question 4-E by the total sample population, department, job category, gender, and ethnicity. The average response for the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

There is very little difference of opinion among departments for Question 4-E except that Department 400 is inclined to slightly agree less with the statement than the other departments.

There is no difference of opinion for Question 4-E by job category or gender.

The comparison of average responses by ethnicity indicates that the Black ethnic group is the only ethnic group which is inclined to slightly disagree with the statement. The White ethnic group agrees with the statement more strongly so than any other ethnic group.

QUESTION 4-E
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 104

Figure 105 shows the average responses to Question 4-E by paygrade category, marital status, and work experience at NAC. The comparison of average responses by paygrade category indicates that all of the paygrade category groups are inclined to agree with the statement to some extent with the managers (GM-13) and the lowest paygrade category group (GS-5) agreeing with the statement more so than the other paygrade category groups.

The average response by job category shows that scientists agree with the statement more so than do engineers.

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There is very little difference between the opinions of males or females to Question 4-E.

The comparison of average responses by ethnic group indicates that the Asian ethnic group is inclined to agree with the statement more so than any other ethnic group. The average response of the Black ethnic group shows that they agree with the statement slightly less than the other ethnic groups.

QUESTION 4-E
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 105

156
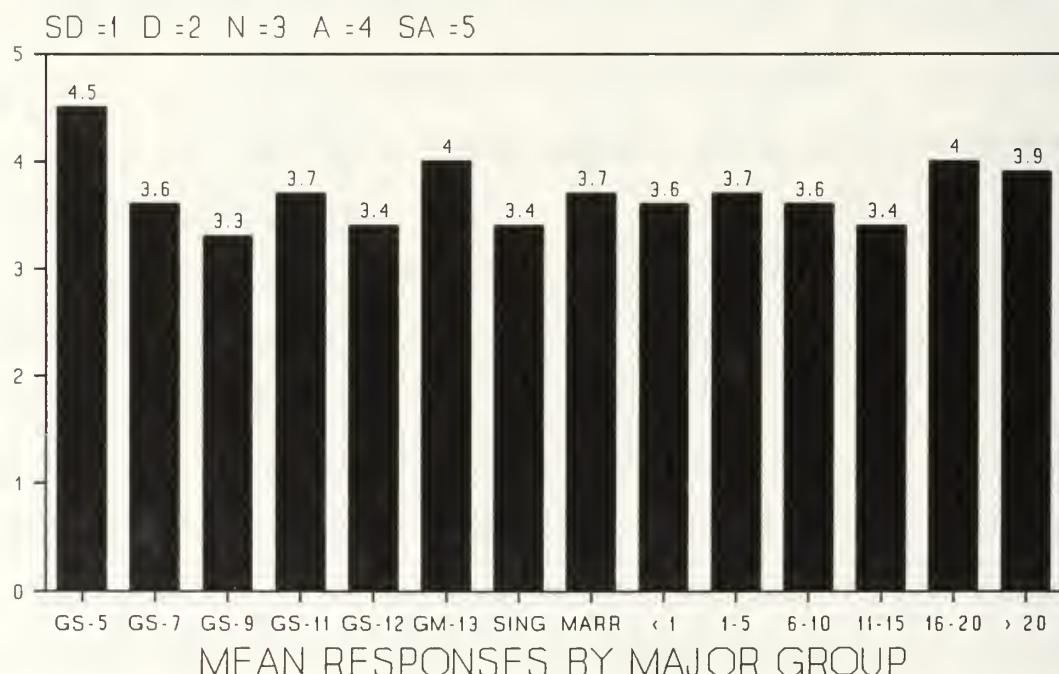
Figure 106 shows the average response to Question 4-E by age group categories. There is very little difference of opinion between age group categories. Age groups 21-25, 31-35, and 41-45 are inclined to agree slightly more so than the other age group categories.

QUESTION 4-E
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
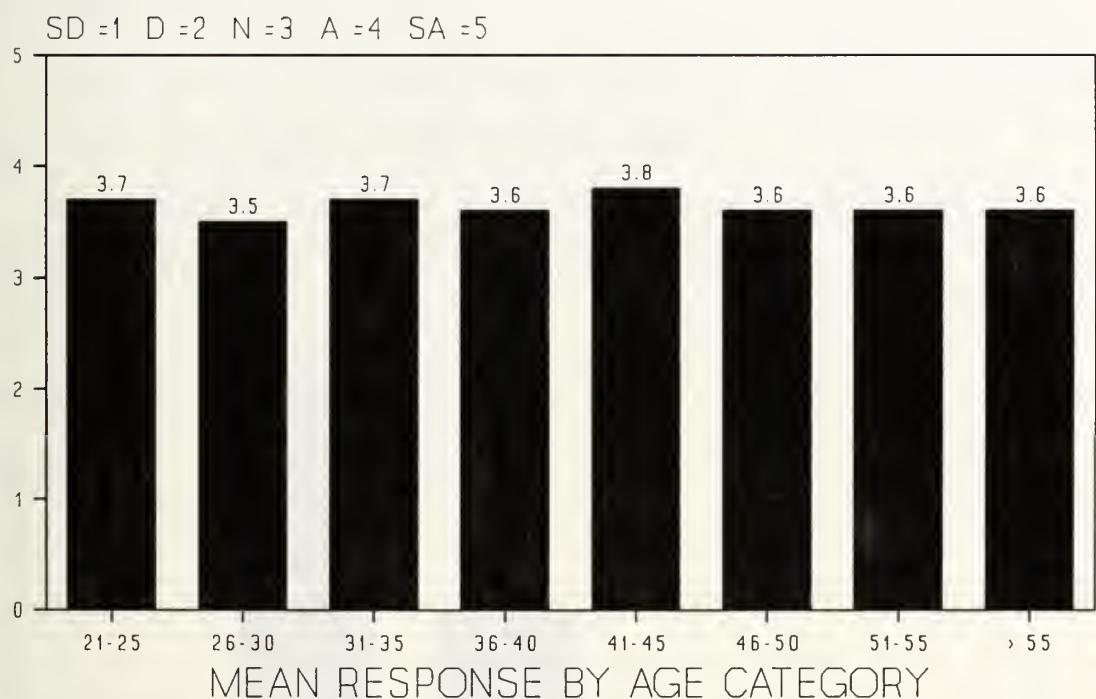
Figure 106

(6) Question 4-F Statement: My branch manager supports and encourages attendance at NAC-sponsored training courses.

Figure 107 shows the frequency of all responses for Question 4-F. Sixty-seven percent of those surveyed said that they were inclined to agree to some extent with the statement, 25% were neutral toward the statement, and 8% were inclined to agree with the statement to some extent.

QUESTION 4-F
ALL RESPONSES

(FREQUENCY OF RESPONSE)
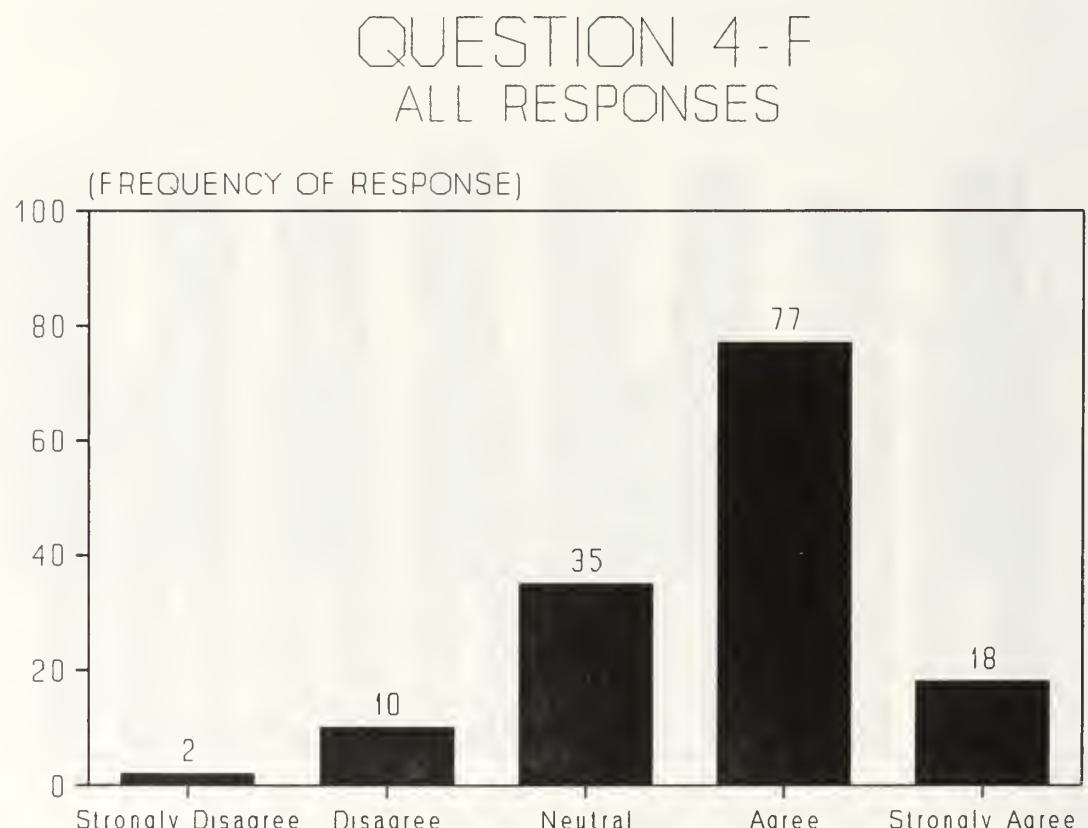
Figure 107

Figure 108 shows the average responses to Question 4-F by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

The comparison of average responses by department shows that Department 900 is inclined to agree with the statement slightly more so than the other departments, while Department 400 is inclined to agree with the statement less than the other departments.

There is very little difference of opinion concerning Question 4-F by job category or gender.

The average response by ethnic group indicates that the Black ethnic group is the only ethnic group which is slightly inclined to disagree with the statement. The other ethnic groups are inclined to agree to some extent with the statement.

QUESTION 4-F
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

(FREQUENCY OF RESPONSE)

MEAN RESPONSES BY MAJOR GROUP
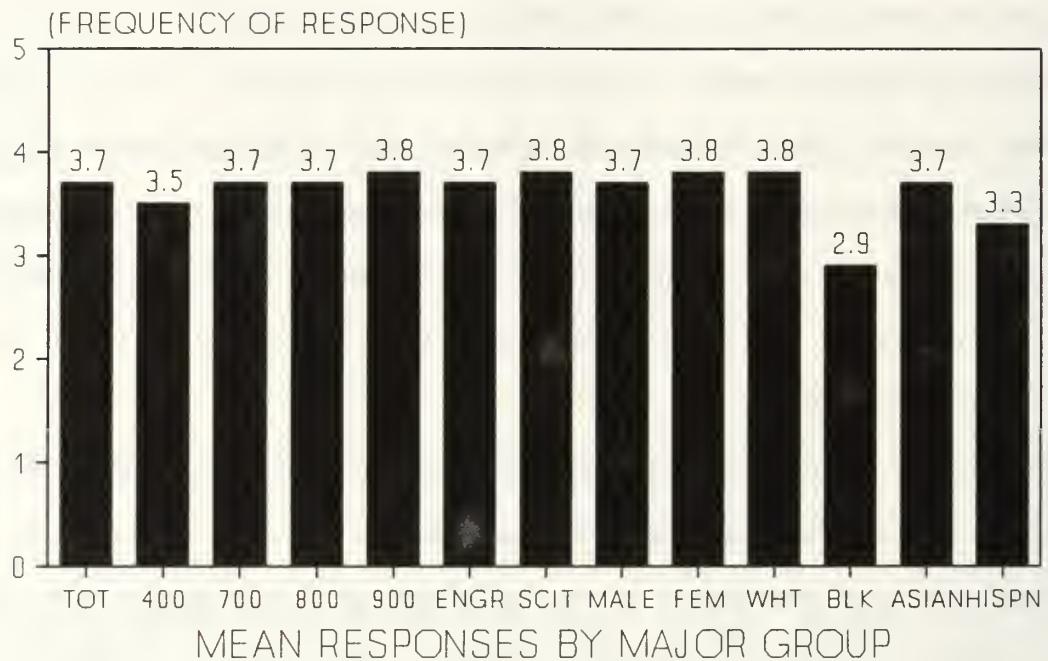
Figure 108

Figure 109 shows the average responses to Question 4-F by paygrade category, marital status, and work experience at NAC. The average responses by paygrade category indicates that the managers (GM-13) and the lower two paygrades (GS-5, GS-7) are inclined to agree with the statement more so than those engineers and scientists in the paygrades of GS-9, GS-11, and GS-12.

There is very little difference of opinion concerning Question 4-F between single or married respondents.

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The comparison of average responses by work experience at NAC shows that the 16-20 year experience group is inclined to agree slightly more with the statement than the other experience categories.

QUESTION 4-F
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
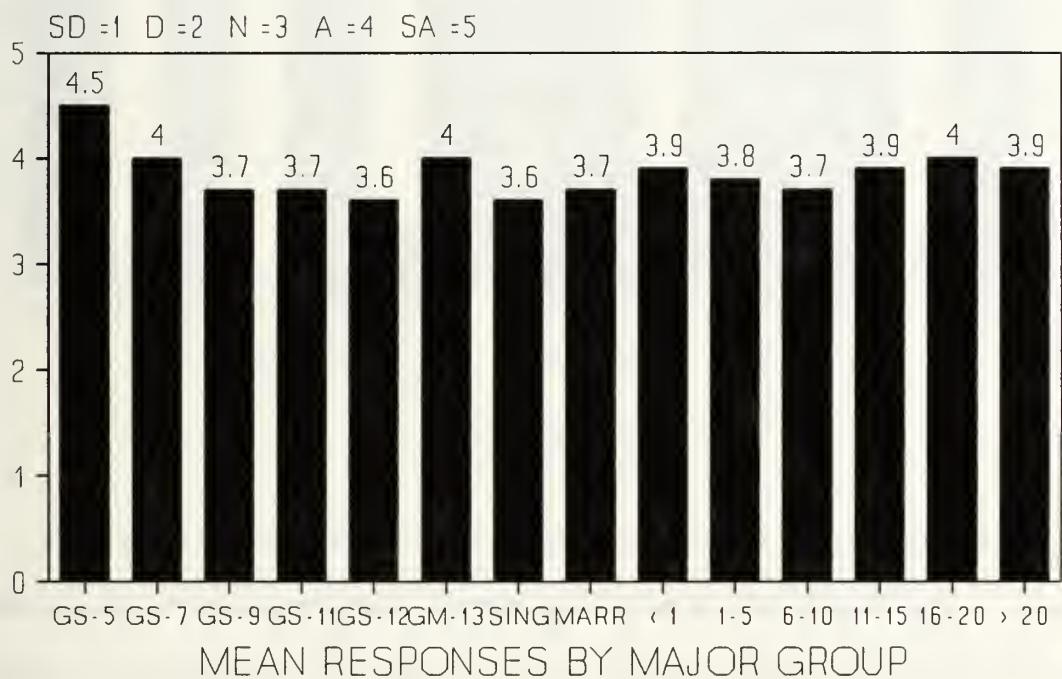
Figure 109

Figure 110 shows the average response to Question 4-F by age group category. The 21-25 year old group is inclined to agree slightly more with the statement than the other age groups, whereas the 26-30 year old group is inclined to agree slightly less with the statement than the other age groups.

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QUESTION 4-F
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY
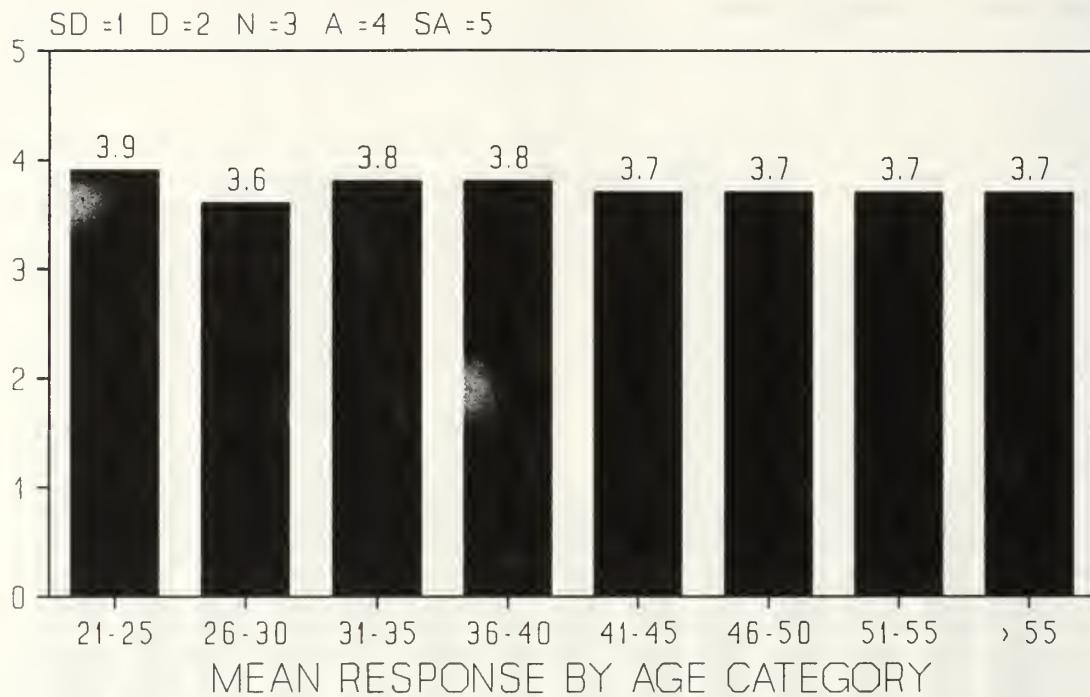
Figure 110

(7) *Question 4-G Statement: My department supports and encourages attendance at NAC-sponsored training courses.*

Figure 111 shows the frequency of all responses to Question 4-G. Fifty-eight percent of those surveyed said that they were inclined to agree with the statement to some extent, 33% were neutral toward the statement, and only 9% were inclined to disagree to some extent with the statement.

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QUESTION 4-G
ALL RESPONSES

(FREQUENCY OF RESPONSE)
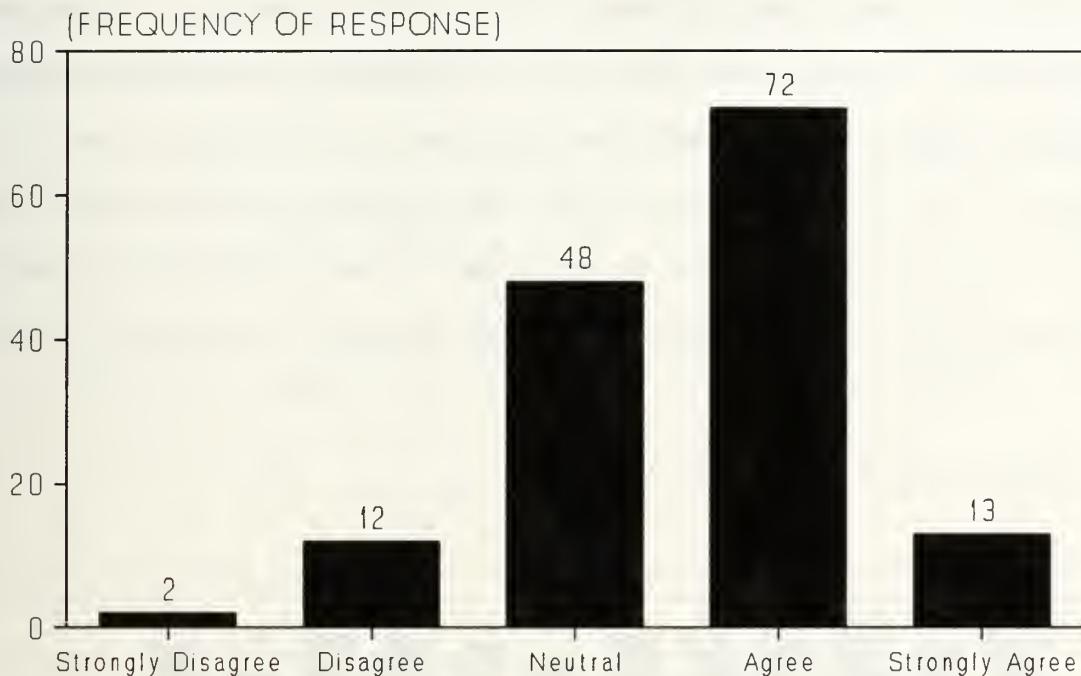
Figure 111

Figure 112 shows the average responses to Question 4-G by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

There is very little difference of opinion concerning Question 4-G between departments.

The average response by job category indicates that engineers are inclined to agree with the statement more so than do scientists.

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There is very little difference of opinion concerning Question 4-G between males and females.

The comparison of average responses by ethnic group indicates that the Hispanic and Black ethnic groups are inclined to agree less with the statement than do the White and Asian ethnic groups.

QUESTION 4-G
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
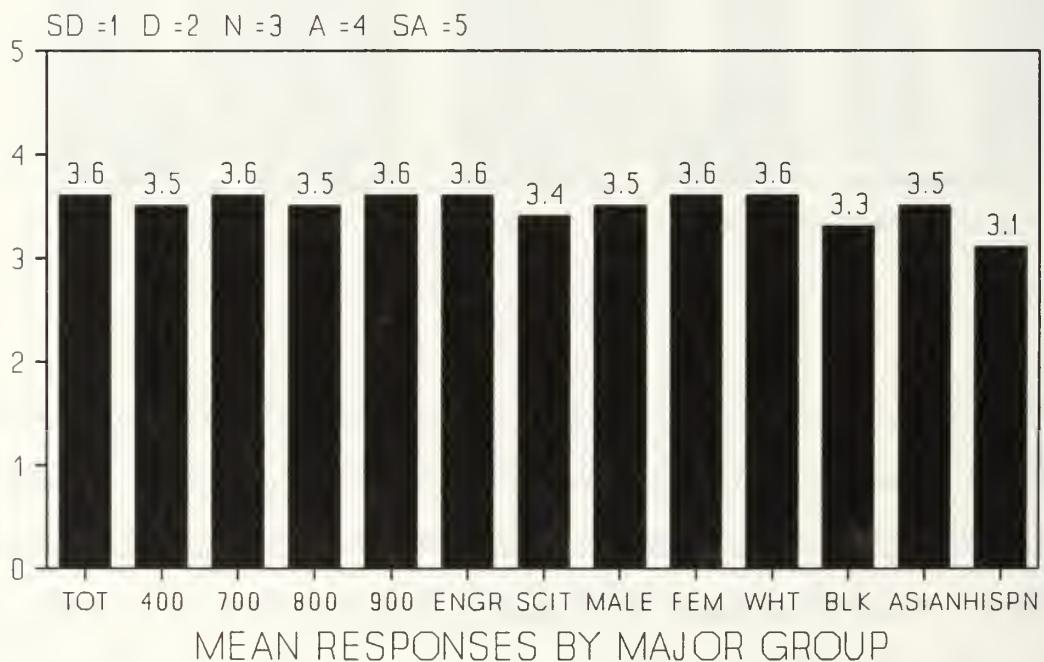
Figure 112

Figure 113 shows the average responses to Question 4-G by paygrade category, marital status, and work experience at NAC. The average responses of the paygrade categories indicates that the managers (GM-13) and the lowest paygrade category

(GS-5) are inclined to agree with the statement more so than the other paygrade category groups.

The average response by marital status shows that married respondents agree with the statement slightly more so than do single respondents.

The comparison of average responses by work experience at NAC categories indicates that those respondents with ten years of experience and less at NAC are inclined to agree less with the statement than those with more than ten years experience.

QUESTION 4-G
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
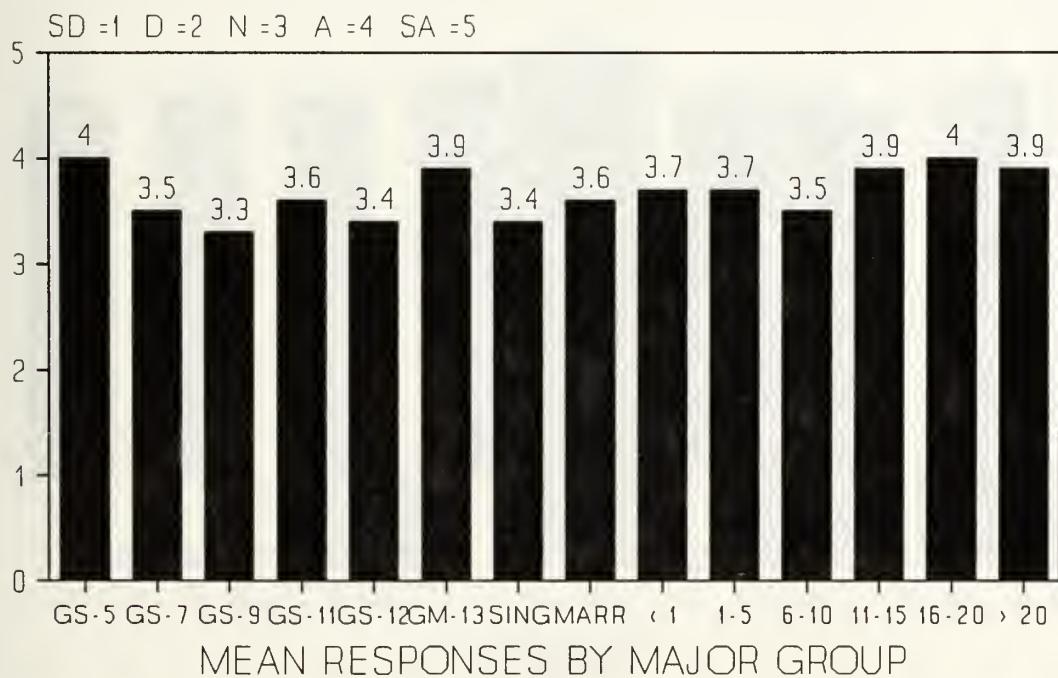
Figure 113

Figure 114 shows the average responses for Question 4-G by age group category. There is very little difference of opinion concerning Question 4-G between age groups. The 41-45 year old group is inclined to agree slightly more with the statement than the other age groups and the 26-30 year old age group is inclined to agree slightly less with the statement than the other age groups.

QUESTION 4-G
BY AGE CATEGORY
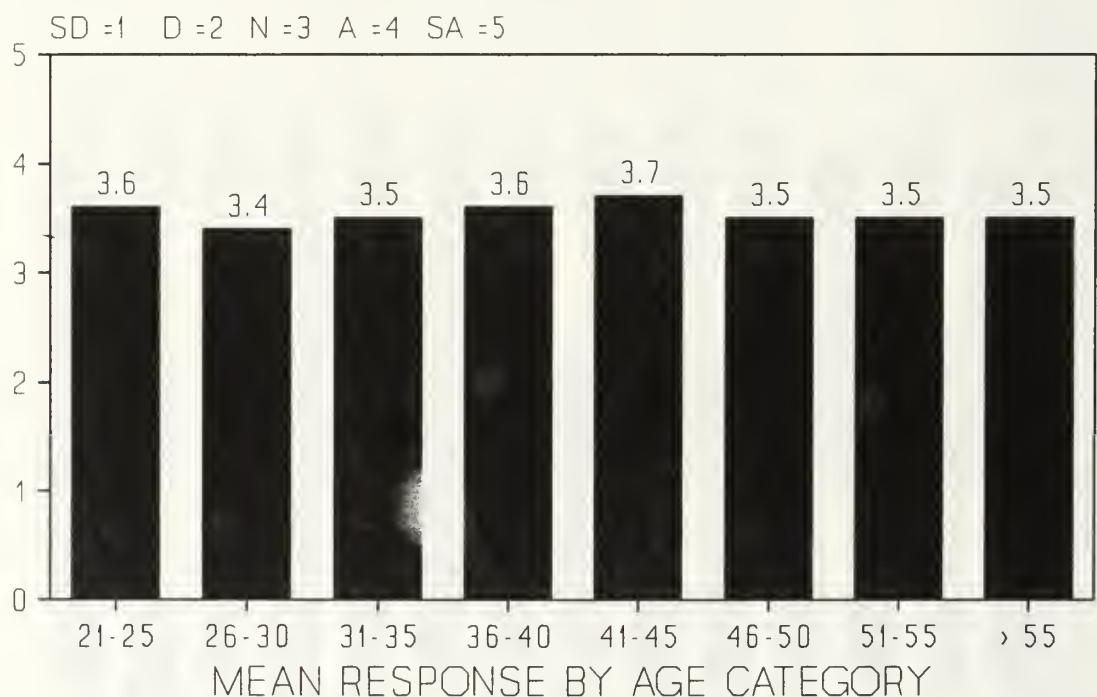
Figure 114

(8) Question 4-H Statement: NAC "Top Leadership"
supports and encourages attendance at NAC-sponsored training
courses.

Figure 115 shows the frequency of all responses
for Question 4-H. Forty-nine percent of those surveyed said
that they agree to some extent with the statement, 43% said
they were neutral toward the statement, and only 8% said they
disagreed with the statement to some extent.

QUESTION 4-H
ALL RESPONSES

(FREQUENCY OF RESPONSE)
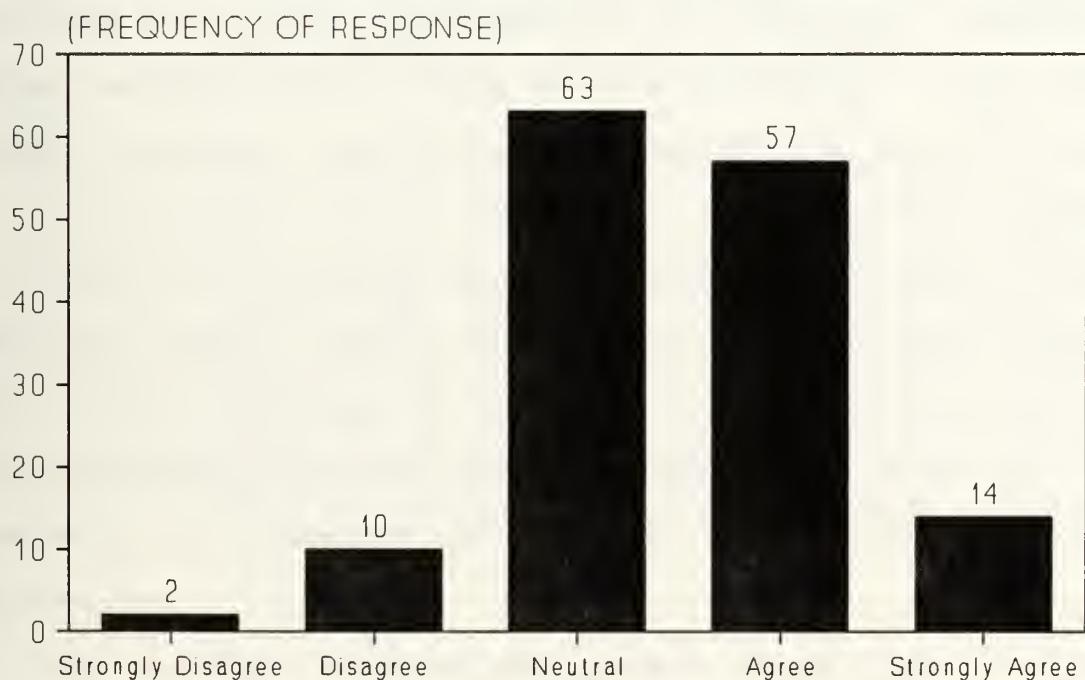
Figure 115

Figure 116 shows the average responses to Question 4-H by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population shows that the sample population is inclined to agree with the statement, but not strongly so.

The average responses by department indicates that Department 700 agrees with the statement more so than the other departments do.

There is very little difference of opinion concerning Question 4-H by job category or gender.

The comparison of average responses by ethnic group indicates that the Hispanic ethnic group is neutral toward the statement. The other ethnic groups are inclined to agree to some extent with the statement with the Black ethnic group agreeing with the statement more so than any other ethnic group.

QUESTION 4-H
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY
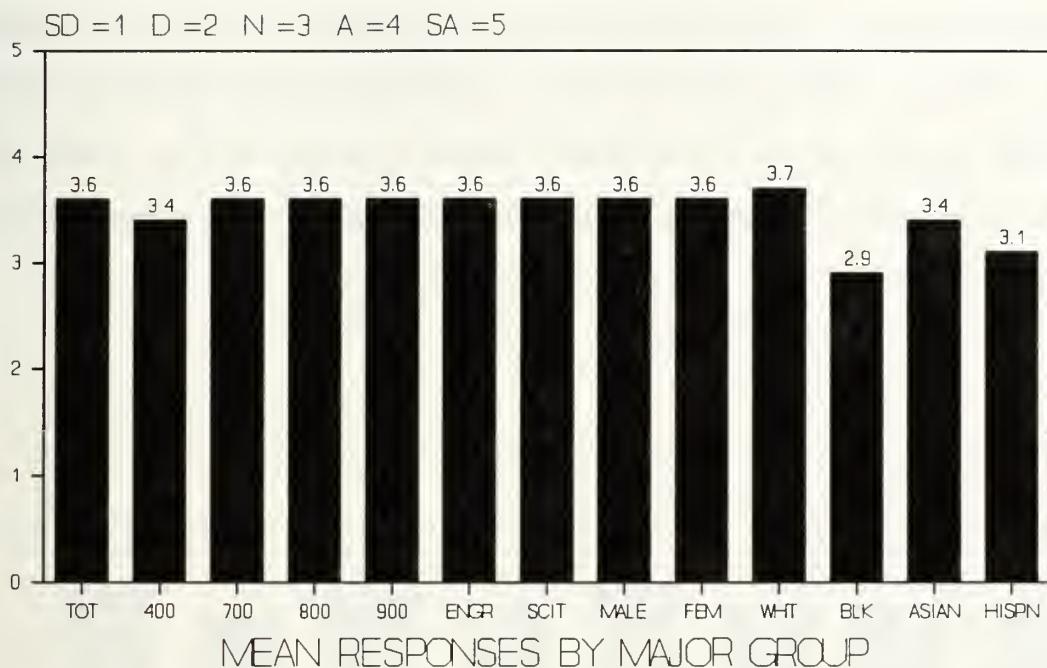

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
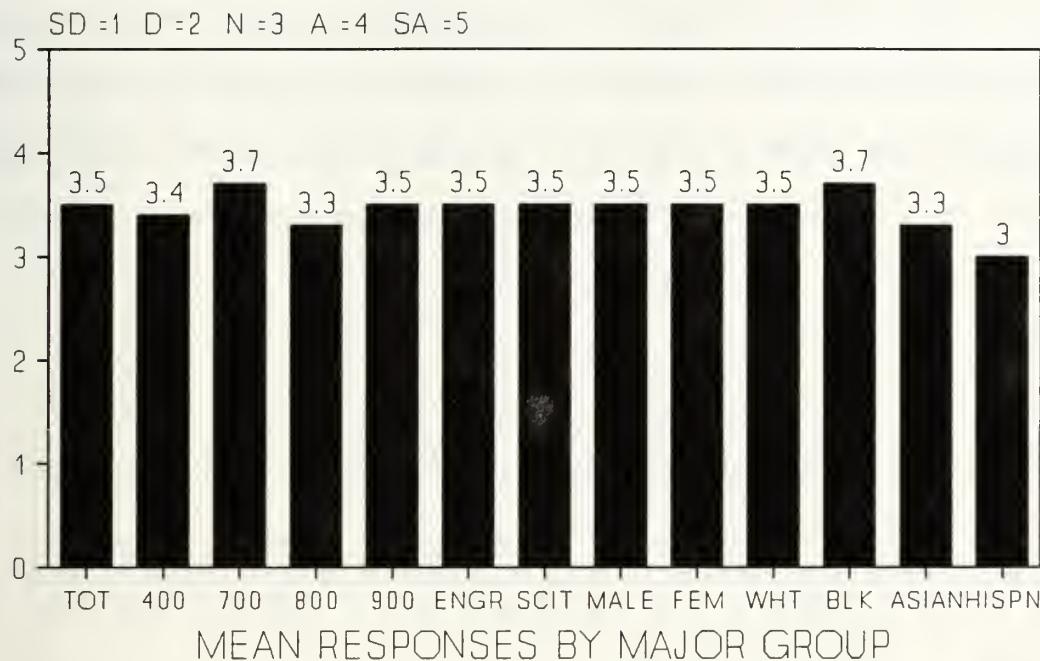
Figure 116

Figure 117 shows the average responses to Question 4-H by paygrade category, marital status, and work experience at NAC. The average responses by paygrade category shows that the managers (GM-13) and the lowest paygrade (GS-5) agree with the statement to a greater extent than do the other paygrade categories.

The average response by gender shows that married respondents are inclined to agree with the statement more so than do single respondents.

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The comparison of average responses for the experience at NAC categories indicates that while the 16-20 years of experience group is inclined to agree with the statement to a lesser extent than the other experience categories, the > 20 years of experience group is inclined to agree with the statement to a greater extent than any of the other experience groups.

QUESTION 4-H
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 117

170
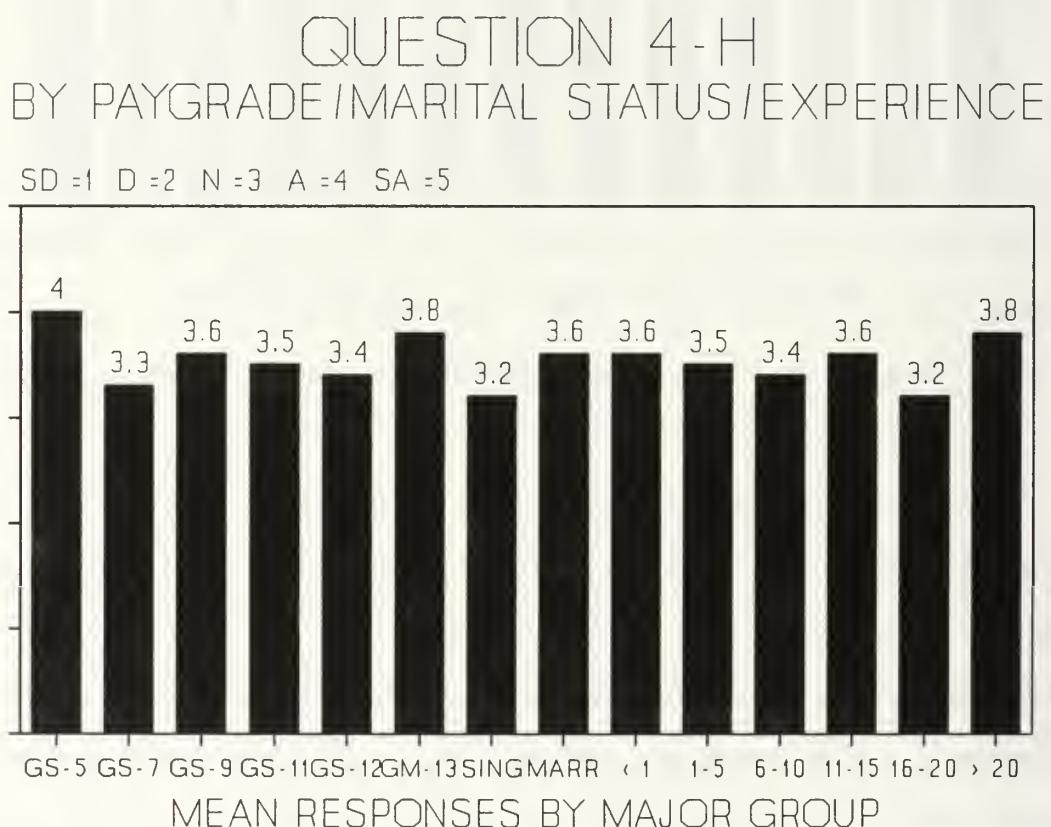
Figure 118 shows the average response to Question 4-H by age group category. The comparison of average response by age group indicates that the 41-45 year old group is inclined to agree with the statement more so than any other age group. The average response of the 31-35 year old age group shows that this group is inclined to agree with the statement slightly less than any of the other age groups.

QUESTION 4-H
BY AGE CATEGORY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE CATEGORY

Figure 118

171
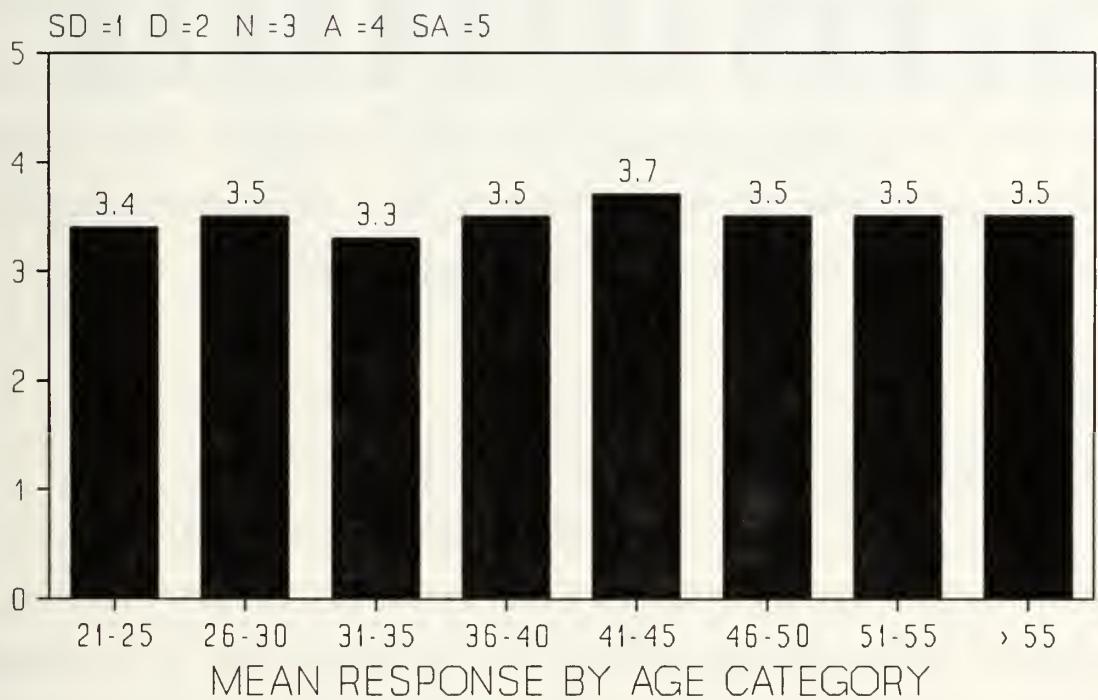
e. *Question 5: What do you see as the greatest obstacle(s) to getting the training you need or would like?*

Figure 119 shows the frequency of all responses for the 14 most frequently listed obstacles to getting training at NAC. The greatest obstacle listed by the total sample population is the monetary costs to NAC. Time is the next greatest obstacle listed to getting training at NAC. This is followed by a lack of available training courses and the respondent's workload. Not sufficiently job related to justify was listed fifth, followed by quotas. The seventh and eighth greatest obstacles are location of training courses and personal motivation. The last six obstacles to getting the training the sample population needed are family, none (there are no obstacles), I can't decide what I need, too much TDY, monetary costs to them, and their supervisor.

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QUESTION 5
ALL RESPONSES

(FREQUENCY OF RESPONSE)

OBSTACLES TO GETTING TRAINING
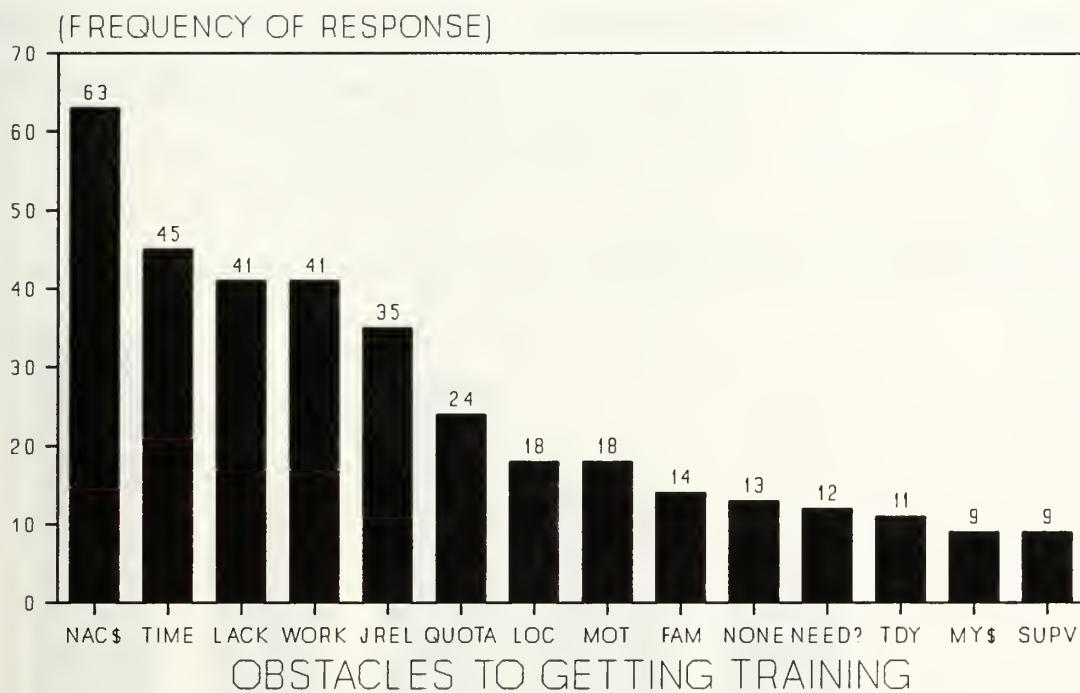
Figure 119

f. *Question 6: How do you think training opportunities at NAC compare with those of private sector organizations?*

Figure 120 shows the frequency of all responses for Question 6. Forty percent of those survey said that training opportunities at NAC were somewhat or much more than private sector organizations, 19% said that the opportunities were somewhat or much less, and 17% said they were about the same.

Twenty-four percent of those responding said that they had no basis for comparison.

QUESTION 6
ALL RESPONSES

(FREQUENCY OF RESPONSE)
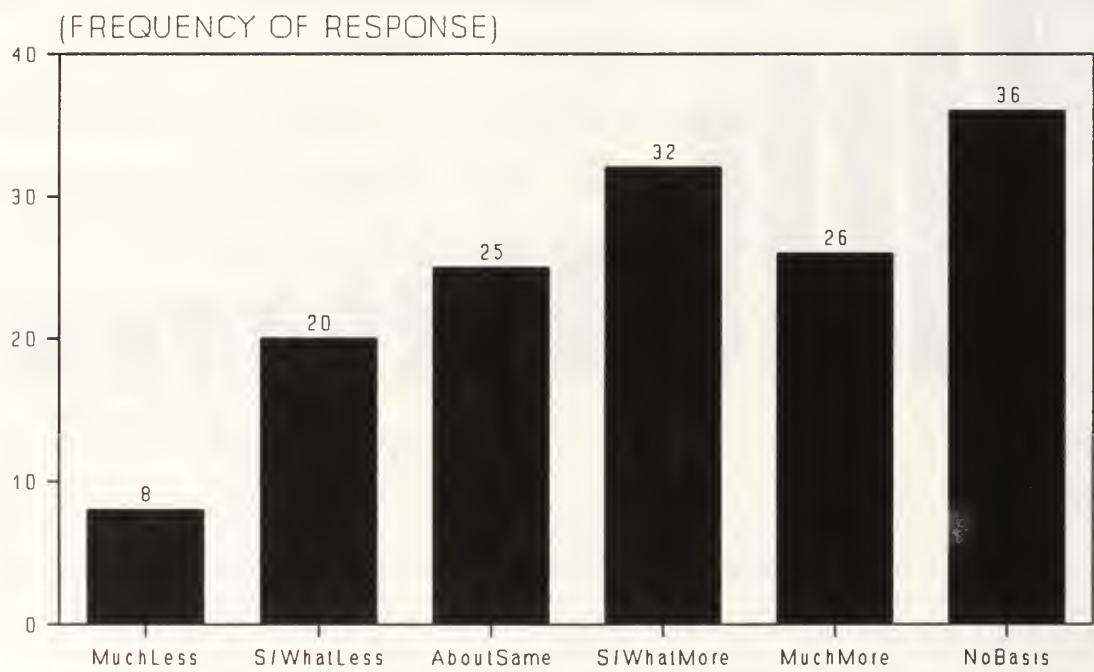
Figure 120

g. *Question 7: How do you think training opportunities at NAC compare with those of other public institutions/organizations?*

Figure 121 shows the frequency of all responses for Question 7. Forty percent of those surveyed said that the

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training opportunities at NAC were somewhat or much more than at other public institutions/organizations, 47% said that the opportunities were about the same, and 13% said that the opportunities were somewhat or much less than at other public institutions/organizations.

QUESTION 7
ALL RESPONSES

(FREQUENCY OF RESPONSE)
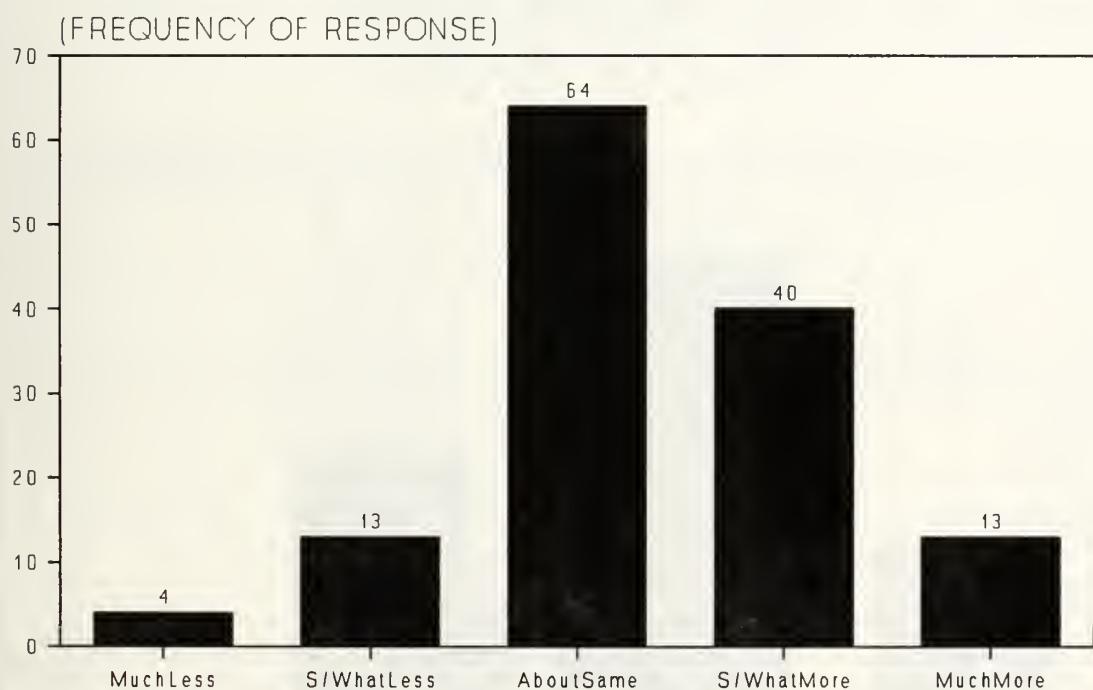
Figure 121

h. Question 8: **To what extent do you believe NAC-sponsored training has a positive effect on morale within NAC?**

Figure 122 shows the frequency of all responses for Question 8. Forty-eight percent of those surveyed said that training has a moderately significant impact on morale within NAC, 30% said that training had a little effect, but not much, on morale within NAC, 18% said that training has a very significant impact on morale within NAC, and only 4% said that training did not have any effect on morale within NAC.

QUESTION 8
ALL RESPONSES

(FREQUENCY OF RESPONSE)
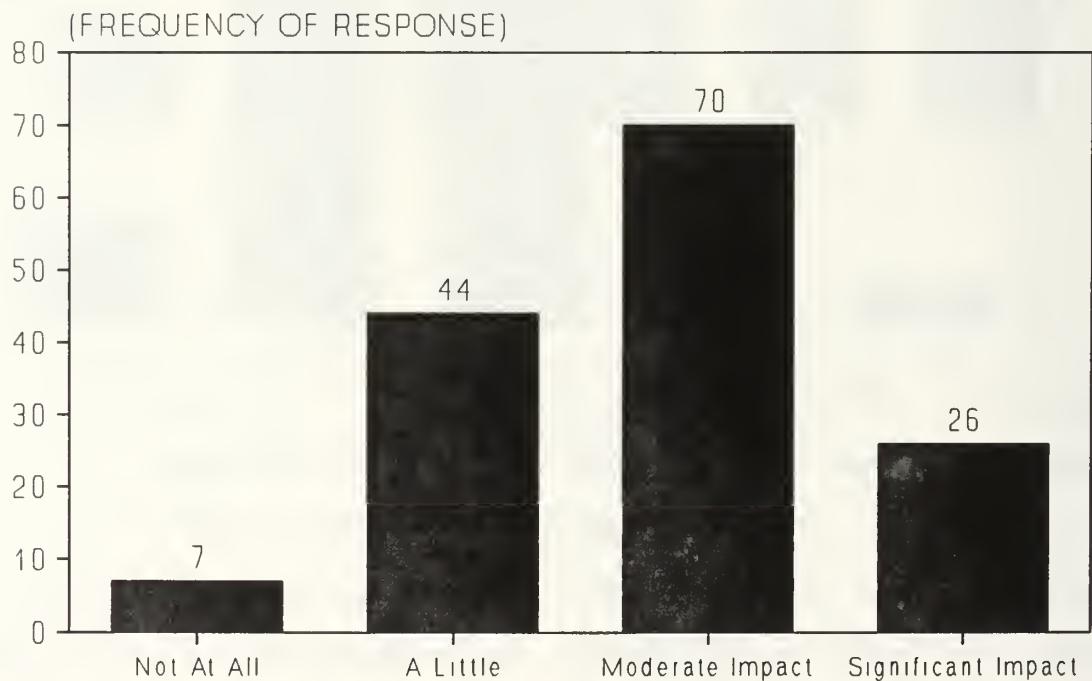
Figure 122

Figure 123 shows the frequency of response for Question 8 by those surveyed in Department 400. Fifty-five percent of those surveyed in Department 400 said that training had a moderately significant impact on morale, 23% said that training had a very significant impact on morale, 18% said that training had a little effect, but not much, and only 4% said that training had no effect at all.

QUESTION 8
DEPARTMENT 400

(FREQUENCY OF RESPONSE)
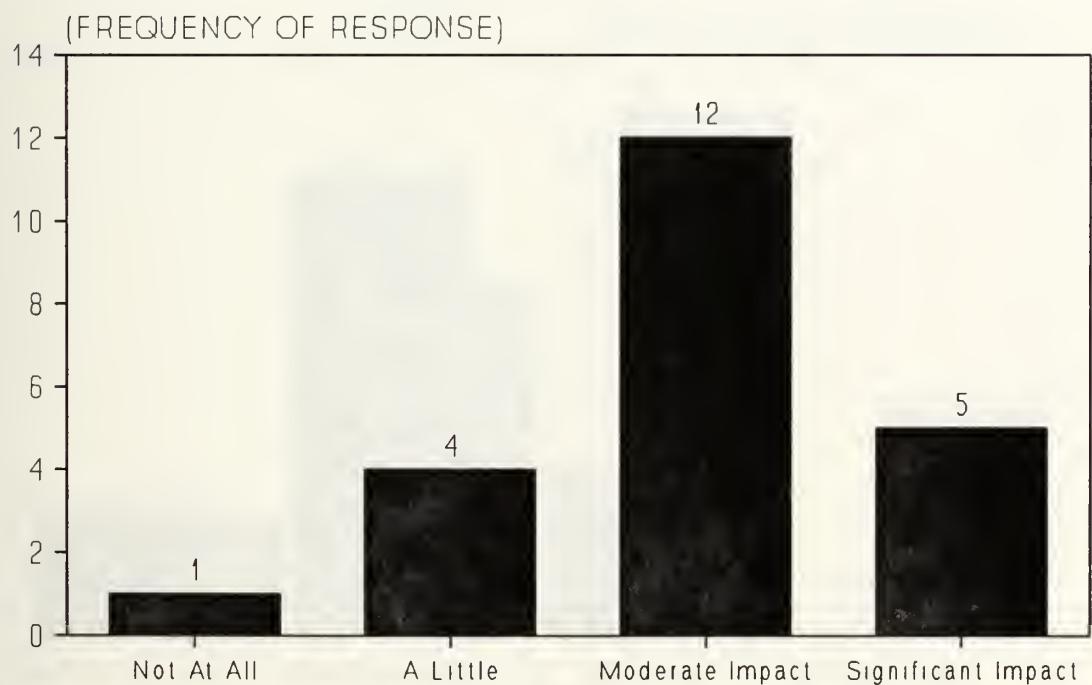
Figure 123

Figure 124 shows the frequency of response for Question 8 by Department 700. Sixty-one percent of those surveyed in Department 700 said that training has a moderately significant impact on morale, 22% said that training has a little effect, but not much, and 17% said that training has a very significant impact on morale. No one in Department 700 said training had no effect at all on morale within NAC.

QUESTION 8
DEPARTMENT 700
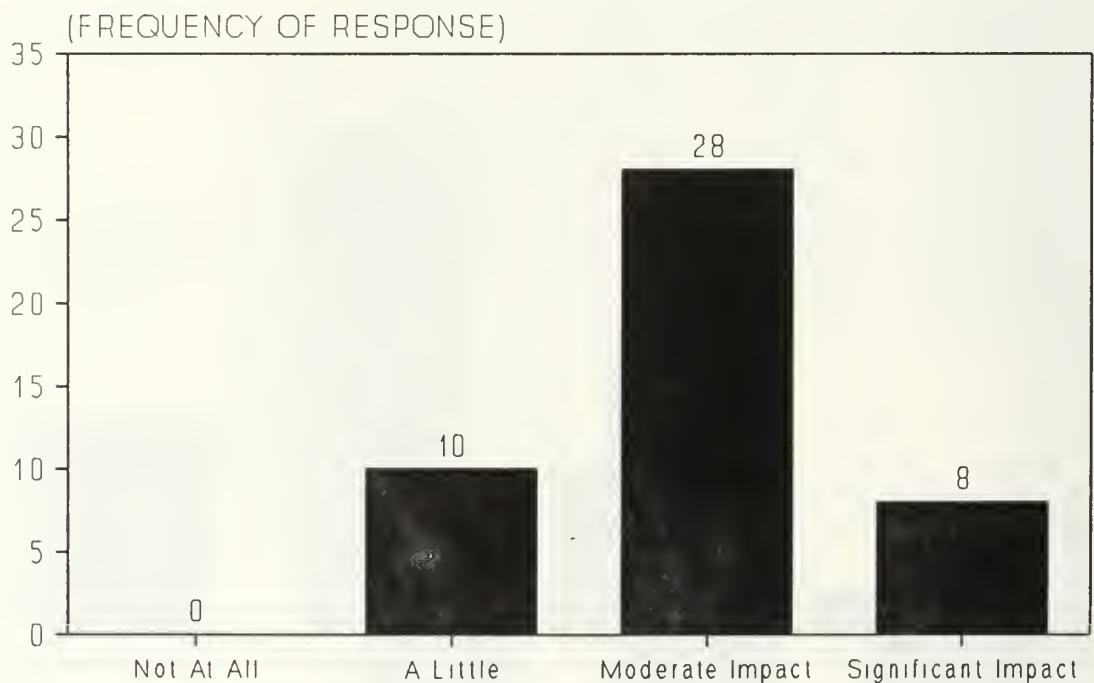
Figure 124

Figure 125 shows the frequency of response for Question 8 by Department 800. Forty-three percent of those surveyed in Department 800 said that training has a moderately significant impact on morale, 29% said that training has a little effect, but not much, 19% said that training has a very significant impact on morale, and 9% said that training had no effect at all on morale within NAC.

QUESTION 8
DEPARTMENT 800

(FREQUENCY OF RESPONSE)
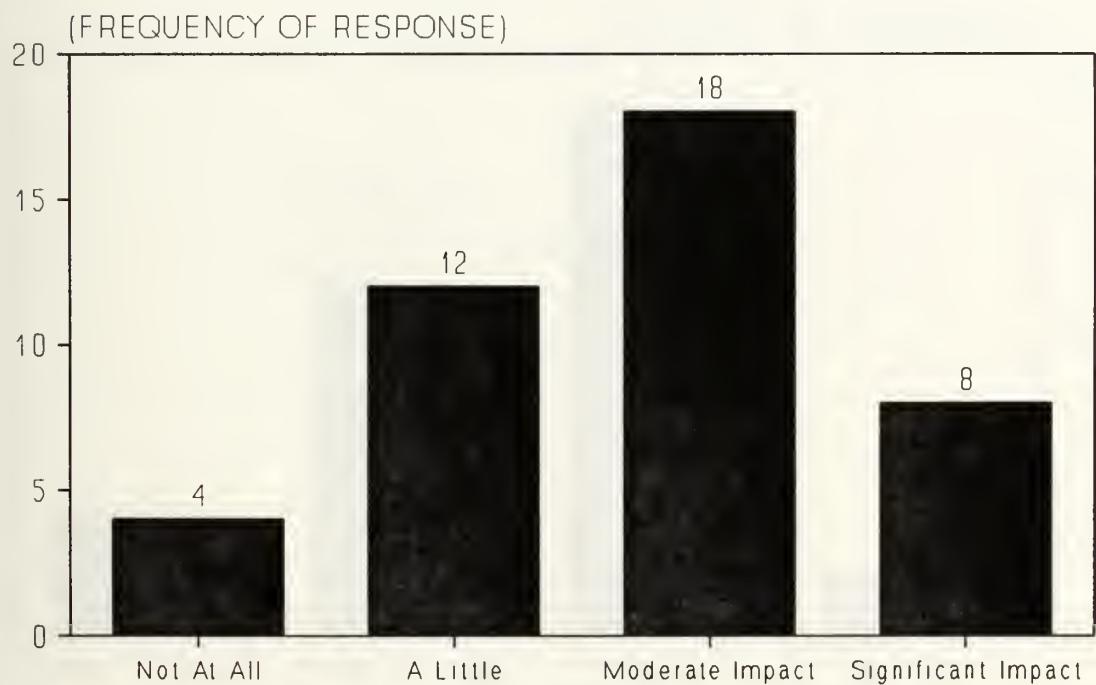
Figure 125

Figure 126 shows the frequency of response for Question 8 by Department 900. Fifty percent of those surveyed in Department 900 said that training has a little effect on morale within NAC, but not much, 33% said that training has a moderately significant impact on morale, 11% said training has a very significant impact on morale, and 6% said that training has no effect on morale at all.

QUESTION 8
DEPARTMENT 900
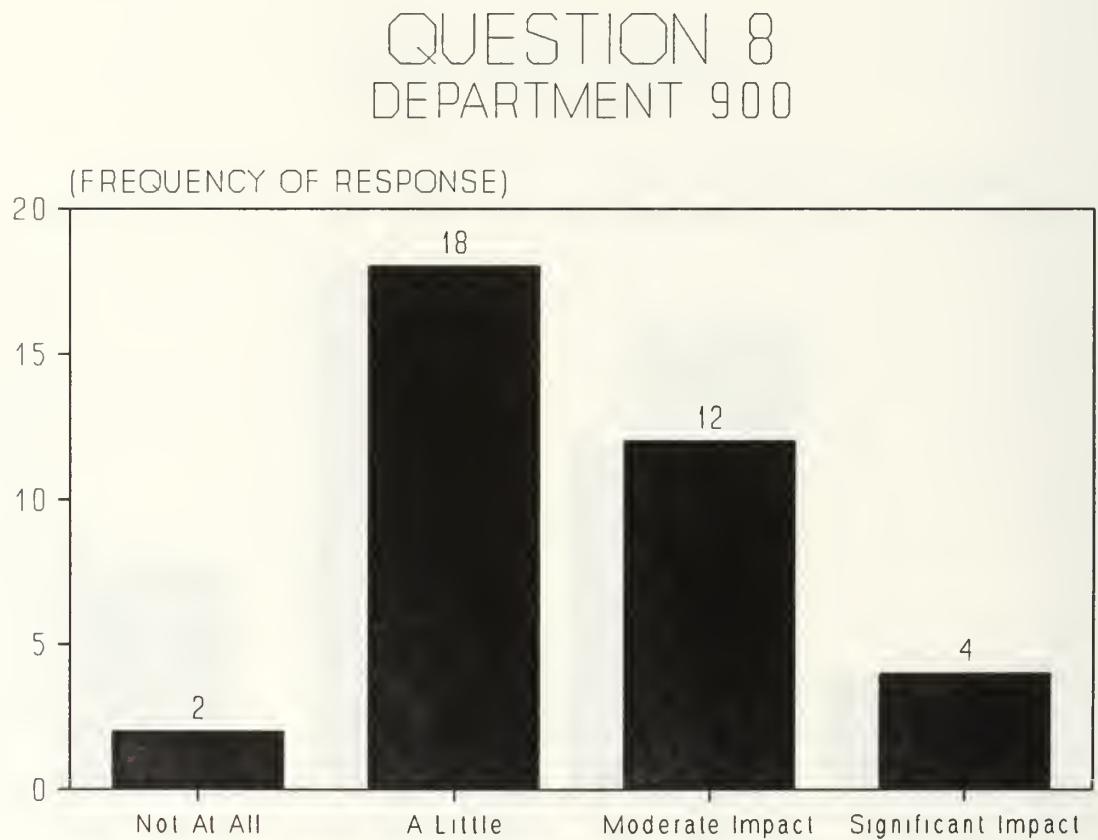
Figure 126

Figure 127 shows the frequency of response to Question 8 by the engineer community. Forty-seven percent of the engineer community surveyed said that training has a moderately significant impact on morale, 29% said that training has a little effect, but not much, 18% said that training has a very significant impact, and 6% said that training has no effect on morale within NAC.

QUESTION 8
ENGINEERS

(FREQUENCY OF RESPONSE)
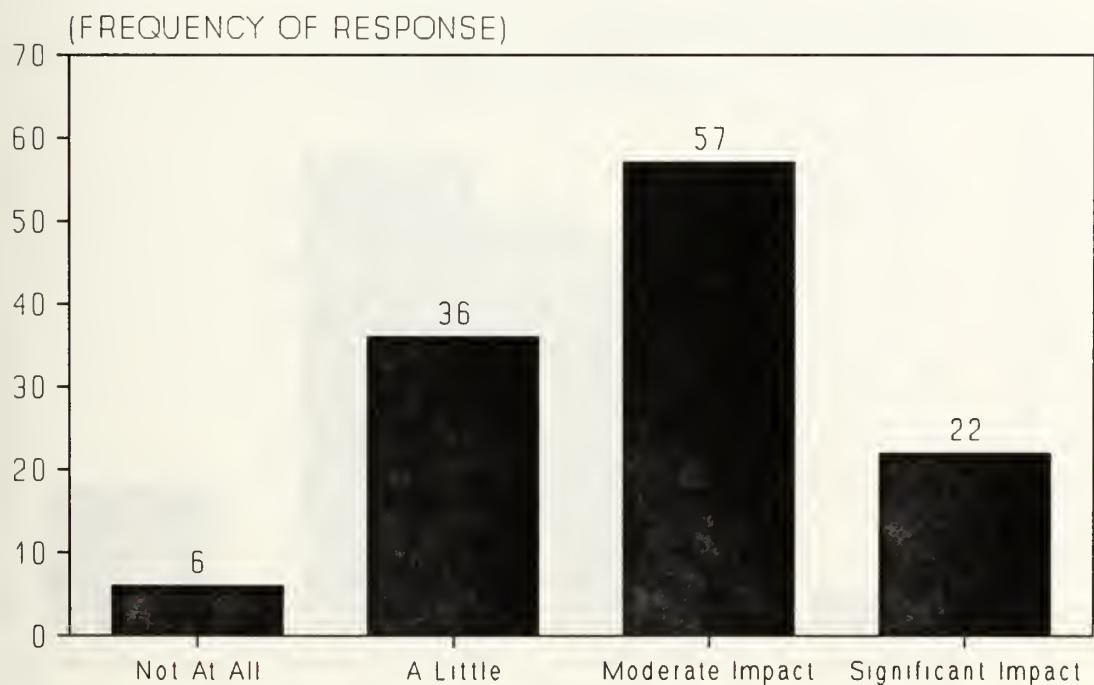
Figure 127

Figure 128 shows the frequency of response for Question 8 by the scientist community. Fifty percent of the scientist community surveyed said that training has a moderately significant impact on morale within NAC, 31% said that training has a little effect on morale, but not much, 15% said that training has a very significant impact on morale, and only 4% said that training has no effect on morale within NAC.

QUESTION 8
SCIENTISTS

(FREQUENCY OF RESPONSE)
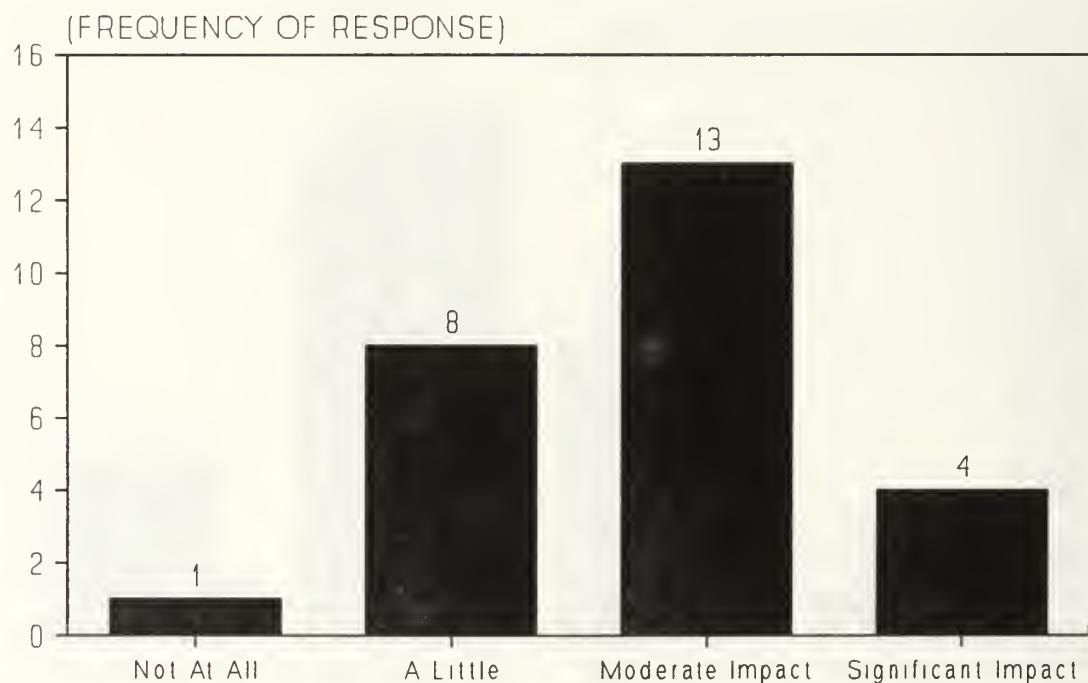
Figure 128

i. Question 9: To what extent do you use the skills you have learned from training? That is, do you get the opportunity to put into practice the new skills you learn?

Figure 129 shows the responses of the total sample population concerning technical training. Comments from the total sample population were consolidated into two categories - positive and negative comments. Eighty-two percent of those who responded to Question 9 - Technical Training had positive comments.

QUESTION 9
TECHNICAL TRAINING

POS 82%
92

NEG 18%
20

Figure 129

Table 11 provides the list of positive comments the total sample population made about the extent to which they are given the opportunity to put into practice the new skills they have learned through technical training.

183

TABLE 11.--POSITIVE TECHNICAL TRAINING SKILL USE COMMENTS

Totals	Comments by the Total Sample Population
36	I make daily use of the technical skills I have learned.
6	I make use of the skills to some aspect/extent.
5	I make extensive use of the skills learned.
5	I sometimes use the skills I've learned.
6	I used the skills about 50% of the time.
4	I use the skills most of the time.
4	Yes, I use the skills.
3	I use the skills very much.
3	I use the skills very often.
2	I use all of the skills.
2	I use a few of the skills.
2	Some isn't, some is.
2	Yes, they relate to my present work effort.
2	I use the skills once in a while.
1	My usage is small, but significant.
1	I use the skills to a great extent.
1	Some haven't, some have.
1	I use much of it.
1	I use several of the skills learned.
1	I use lots of the skills learned.
1	I constantly use the skills learned.
1	I occasionally use the skills learned.
1	I have a fairly good opportunity to use the skills.
1	I use my skills learned somewhat.
1	I make substantial use of the skills learned.
1	The skills have provided some background.

Table 12 provides a list of negative comments regarding the extent to which the total sample population is allowed to use the skills learned from technical training.

TABLE 12.--NEGATIVE TECHNICAL TRAINING SKILL USE COMMENTS

Totals	Comments by the Total Sample Population
7	None. I do not use the skills learned.
1	I use the skills very little.
2	I use the skills very seldom.
2	The skills are used not much.
2	The skills are used not that often.
1	There is no opportunity/availability to use the skills learned.
1	The opportunity to use the skills is low.
1	I use the skills on a somewhat limited basis.

Figure 130 shows the responses of the total sample population regarding managerial training. Comments from the total sample population were consolidated into two categories - positive and negative comments. Of the total sample population who responded to Question 9 - Managerial Training, 69% had favorable/positive comments to make about the extent to which they used the managerial skills they learned.

QUESTION 9
MANAGERIAL TRAINING

POS 69%
36

NEG 31%
16
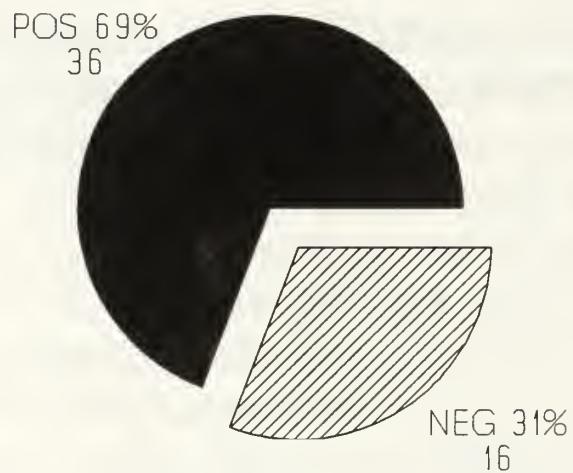
Figure 130

Table 13 provides a list of positive comments concerning
the extent of the use of managerial training made by the total
sample population.

TABLE 13.--POSITIVE MANAGERIAL TRAINING SKILL USE COMMENTS

Totals	Comments by the Total Sample Population
6	I use my managerial training somewhat.
5	I use my managerial training daily.
4	Yes, I use my managerial training.
1	I use my managerial training some.
3	At times I use my managerial training.
2	I regularly use my managerial training.
2	I use my managerial skills to a moderate extent.
2	I use my managerial skills a lot.
2	I use my managerial skills very much.
2	I use my managerial skills a little.
1	I use my managerial skills 50% of the time.
1	I use my managerial skills to a large extent.
1	I use my managerial skills 25% of the time.
1	I use my managerial skills a few.

Table 14 provides a list of negative comments made by the total sample population concerning the extent to which they are allowed to use their managerial skills learned.

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TABLE 14.--NEGATIVE MANAGERIAL TRAINING SKILL USE COMMENTS

Totals	Comments by the Total Sample Population
3	I do not use my managerial skill training much.
3	I use my managerial skill training very little.
2	I do not currently use my managerial skill training.
2	I have limited opportunity to use my managerial skill training.
1	The managerial skill training I received is hard to apply.
1	None. I do not use the managerial skills I was taught.
1	I seldom use the managerial skill training I was given.
1	The managerial skill training is a lot of hot air.
1	I have found little use for the managerial skill training I have been given.
1	Not very often do I get to use the managerial skills I have been taught.

4. **Results From Training**

a. *Question 1: How do you feel about the following statements?*

The following scale was used for answers to questions 1-A through 1-I:

- SD--I strongly disagree with the statement
- D--I disagree with the statement, but not strongly so
- N--I am neutral toward the statement
- A--I agree with the statement, but not strongly so
- SA--I strongly agree with the statement

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(1) *Question 1-A Statement:* In general, the courses improved my technical capabilities.

Figure 131 shows the frequency of all responses for Question 1-A. Eighty-five percent of those surveyed were inclined to agree with the statement to some extent, 10% were neutral toward the statement, and only 5% were inclined to disagree with the statement to some extent.
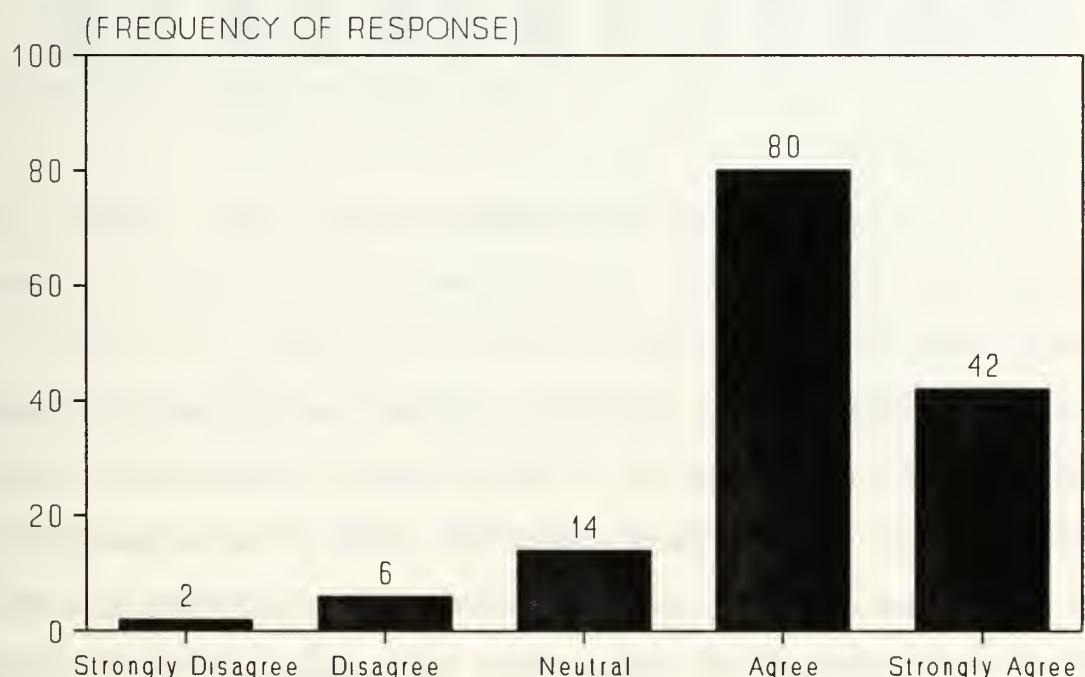
Figure 131

Figure 132 shows the average responses to Question 1-A by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

The average response by department shows that all departments are inclined to agree with the statement. The average response of Department 700 shows that this department is inclined to agree with the statement more so than the other departments. The average response of Department 900 shows that this department is inclined to agree with the statement to a lesser extent than the other departments.

There is no difference of opinion concerning Question 1-A by job category.

The average response by gender shows that females are inclined to agree with the statement to a slightly lesser extent than do males.

The comparison of average responses by ethnic group indicates that the Hispanic ethnic group is inclined to agree with the statement more so than the total sample population and the other ethnic groups. The Black and Asian ethnic groups are inclined to agree with the statement to a lesser extent than the total sample population.

QUESTION 1-A
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
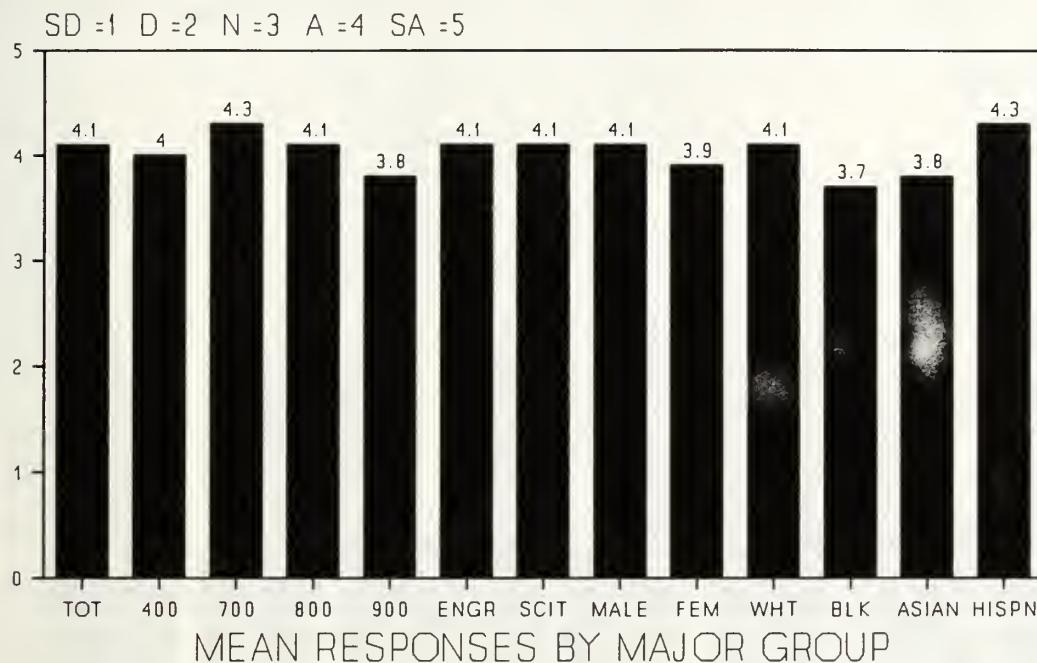
Figure 132

Figure 133 shows the average responses to Question 1-A by paygrade category, marital status, and work experience categories at NAC. The average response by paygrade category indicates that the GS-9 paygrade group is inclined to agree with the statement to a much lesser extent than any of the other paygrade categories. Only one GS-5 responded to this question.

The average response by marital status shows that married respondents are inclined to agree with the statement slightly more so than those who are single.

191

The comparison of average responses by work experience categories indicates that those who have 16 or more years of experience at NAC are inclined to agree with the statement more so than those who have less than sixteen years of experience.

QUESTION 1-A
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 133

Figure 134 shows the average response to Question 1-A by age group. The average responses by age group indicates that, with the exception of the 51-55 year old age group, the older the respondent is the more he is inclined to agree with the

statement. The 51-55 year old group is inclined to agree with the statement to a lesser extent than any other age group.

QUESTION 1-A
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
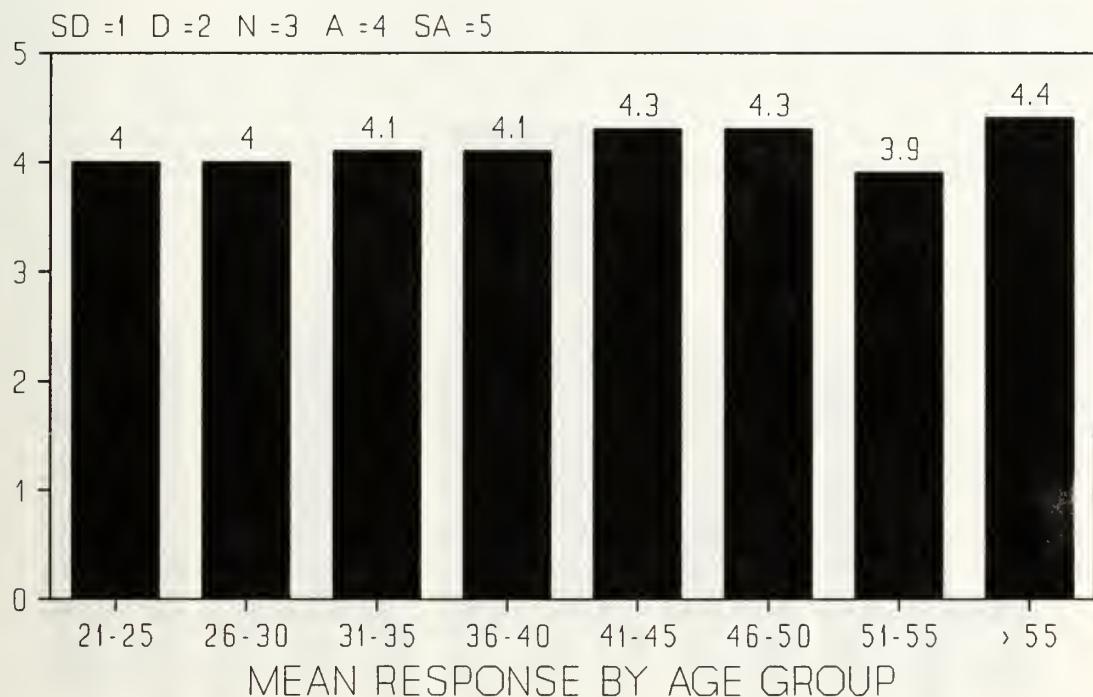
Figure 134

(2) Question 1-B Statement: In general, the courses improved my managerial capabilities.

Figure 135 shows the frequency of all responses for Question 1-B. Forty-eight percent of those surveyed said that they were neutral toward the statement, 39% were inclined

to agree with the statement to some extent, and 13% were inclined to disagree with the statement to some extent.

QUESTION 1-B
ALL RESPONSES

Figure 135

Figure 136 shows the average responses to Question 1-B by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to agree with the statement, but only slightly so.

There is very little difference of opinion concerning the statement between departments, job categories, or gender.

The average responses by ethnic groups shows that the Hispanic ethnic group is the only group which is inclined to slightly disagree with the statement. All other ethnic groups are inclined to agree with the statement to some extent.

QUESTION 1-B
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY MAJOR GROUP
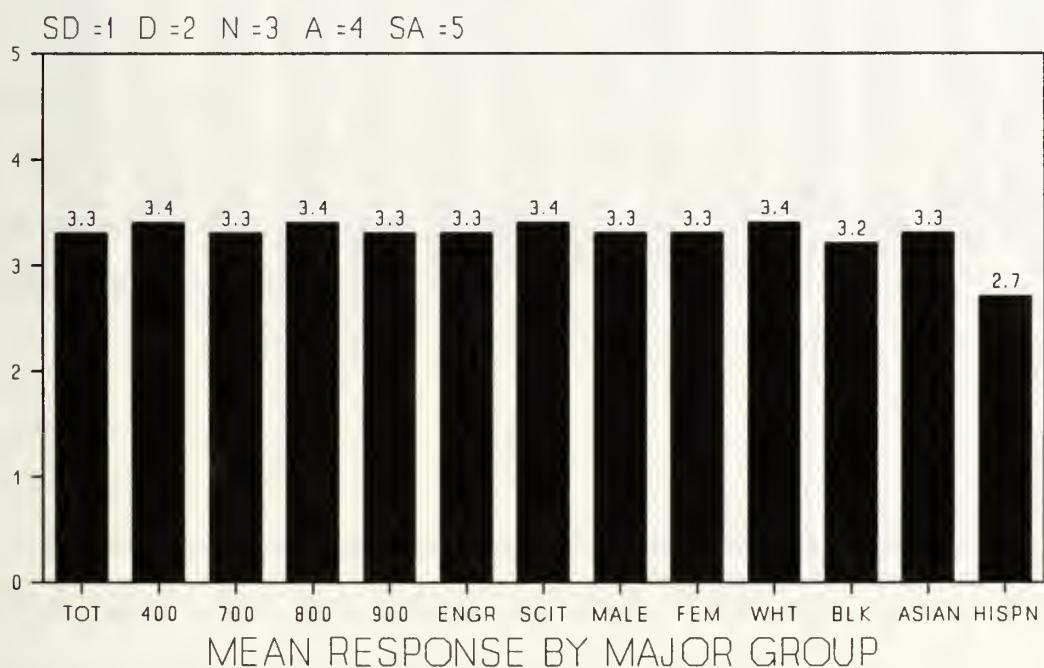
Figure 136

Figure 137 shows the average responses for Question 1-B by paygrade category, marital status, and work experience at NAC. The comparison of the average response by paygrade category indicates that the three lowest paygrade categories are either neutral toward the statement or are inclined to slightly

disagree with the statement, whereas the top three paygrade categories are inclined to agree with the statement to some extent. In general, the higher the paygrade, the more likely the individual will agree with the statement.

The average response by gender shows that single respondents are inclined to be neutral toward the statement, whereas married respondents are inclined to agree with the statement.

The comparison of average responses by NAC experience indicates that those respondents with less than six years experience at NAC are inclined to be neutral or only slightly inclined to agree with the statement, whereas, those with six years of experience or more are much more inclined to agree with the statement.

QUESTION 1-B
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
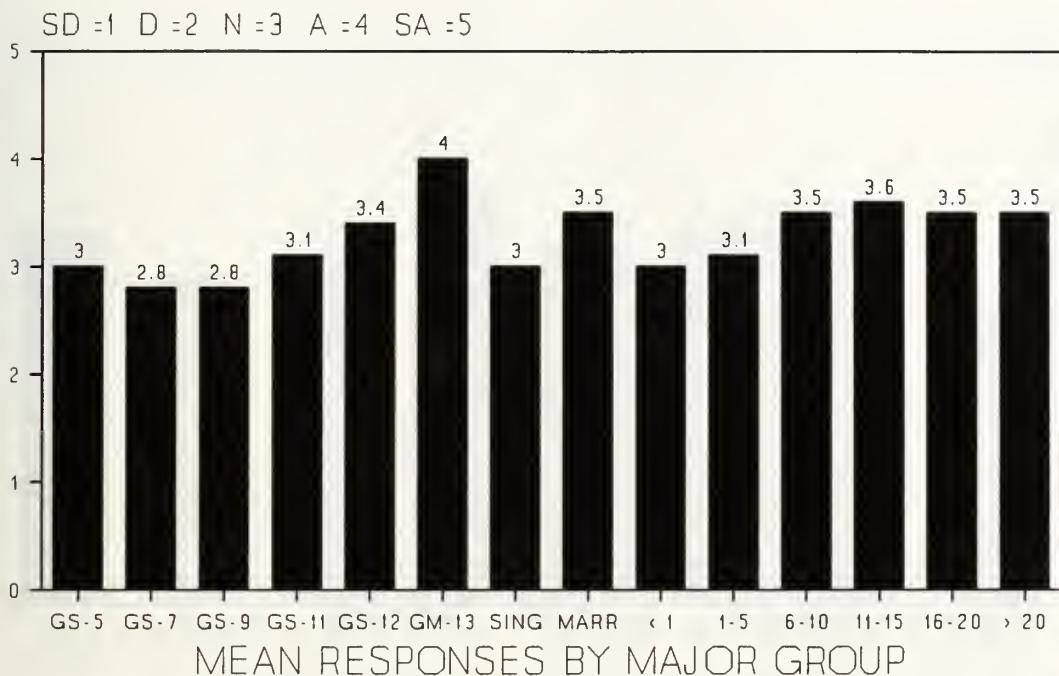
Figure 137

Figure 138 shows the average response by age group. The 21-25 year old age group is the only one whose average response indicates that they are inclined to slightly disagree with the statement. The average response of the 41-45 year old age group shows that this age group is inclined to agree with the statement much more so than any other age group. The 51-55 year old age group is the only one whose average response indicates that they are inclined to be neutral toward the statement.

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QUESTION 1-B
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
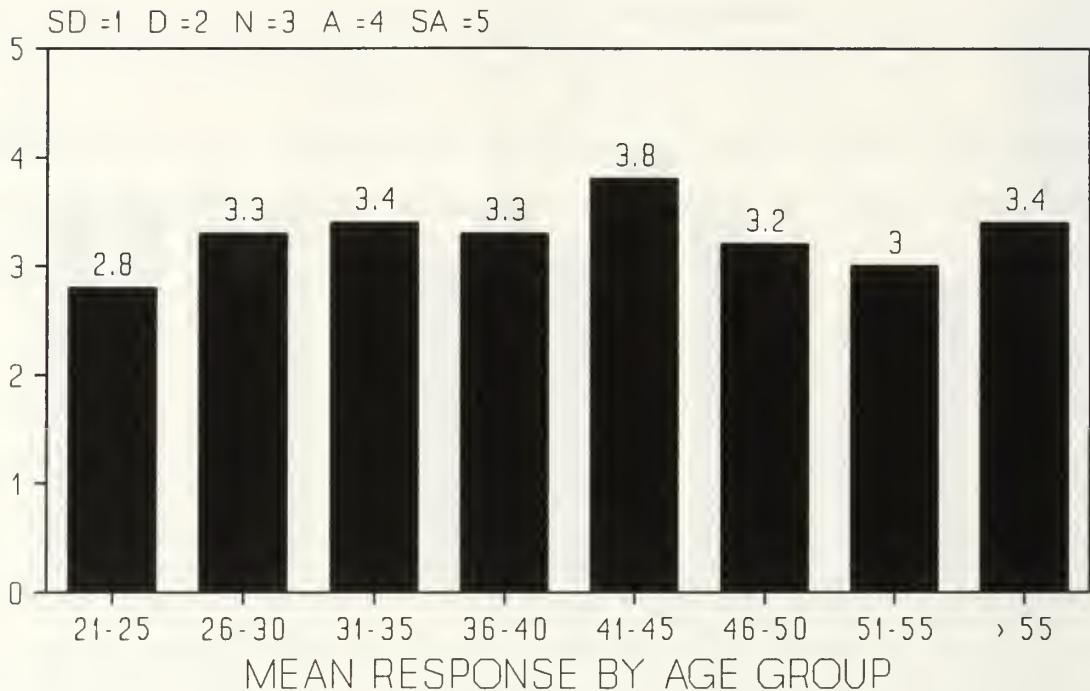
Figure 138

(3) *Question 1-C Statement: In general, the courses have increased my job satisfaction.*

Figure 139 shows the frequency of all responses for Question 1-C. Sixty-three percent of those surveyed said that they were inclined to agree with the statement to some extent, 26% were inclined to be neutral toward the statement, and 11% were inclined to disagree with the statement to some extent.

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QUESTION 1-C
ALL RESPONSES

(FREQUENCY OF RESPONSE)

Figure 139

Figure 140 shows the average responses for Question 1-C by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

The average response by department indicates that Department 900 is inclined to agree to a lesser extent with the statement than the total sample population or the other departments.

199

There is very little difference of opinion concerning Question 1-C by job category, gender, or ethnicity.

QUESTION 1-C
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 140

Figure 141 shows the average response to Question 1-C by paygrade category, marital status, and work experience at NAC. The average response by paygrade category indicates that the GS-9 paygrade group is inclined to agree with the statement to a much lesser extent than any of the other paygrade categories. Only one GS-5 responded to this question.

200

The average response by marital status shows that married respondents are inclined to agree with the statement more so than those respondents who are single.

The average response by experience at NAC shows that the 11-15 years of experience group is inclined to be neutral toward the statement. All of the other experience groups are inclined to agree with the statement to a considerable extent.

QUESTION 1-C
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
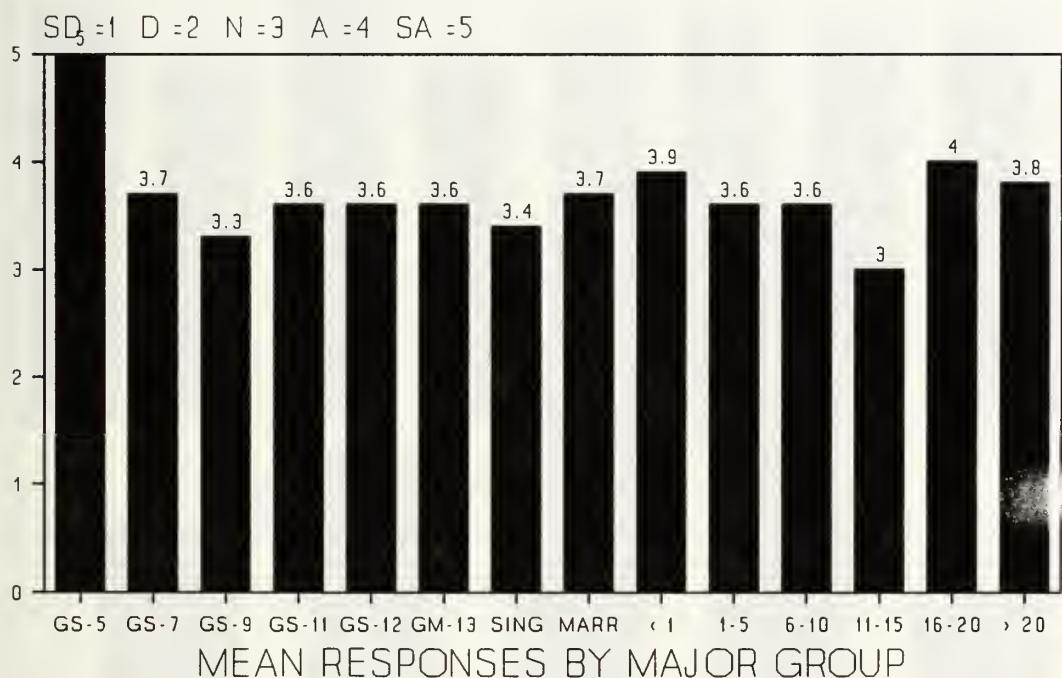
Figure 141

201

Figure 142 shows the average response to Question 1-C by age group. The average responses of the age groups indicates that the 46-50 year old group is much more inclined to agree with the statement than any other age group.

QUESTION 1-C
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
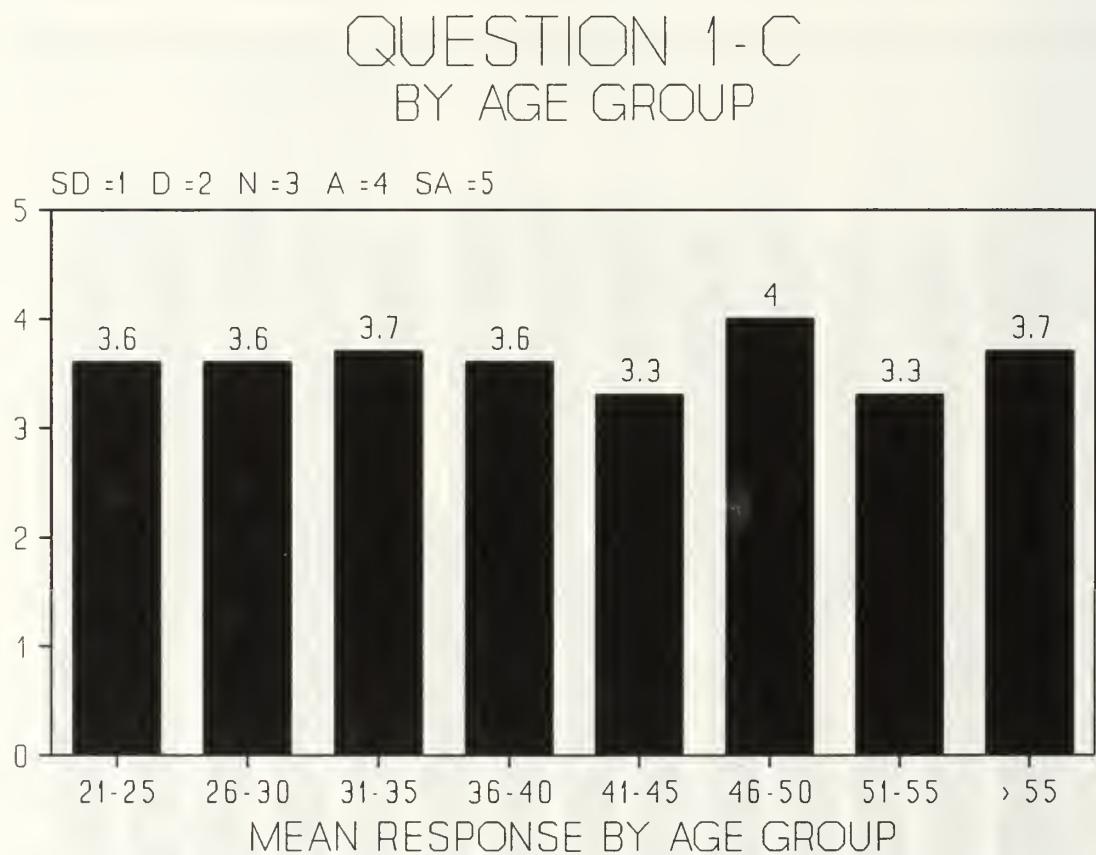
Figure 142

(4) *Question 1-D Statement:* In general, the courses have enhanced my promotion potential.

Figure 143 shows the frequency of all responses for Question 1-D. Forty-four percent of those surveyed said that they are inclined to agree with the statement to some extent, 30% of those surveyed were inclined to disagree with the statement to some extent, and 26% were inclined to be neutral toward the statement.

QUESTION 1-D
ALL RESPONSES

Figure 143

Figure 144 shows the average responses to Question 1-D by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is just slightly inclined to agree with the statement.

The comparison of average responses by department shows that Department 800 is inclined to disagree with the statement. The other departments are inclined to agree with the statement to some extent.

The average response by job category shows that the engineer community is inclined to be neutral toward the statement, whereas, the scientist community is inclined to agree with the statement.

The average response by gender shows that males are inclined to be neutral toward the statement, whereas, females are inclined to agree with the statement.

The comparison of average responses by ethnic group indicates that the Asian ethnic group is the only group which is inclined to disagree with the statement. The other ethnic groups are inclined to be neutral toward the statement or inclined to slightly agree with the statement.

QUESTION 1-D
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICTY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
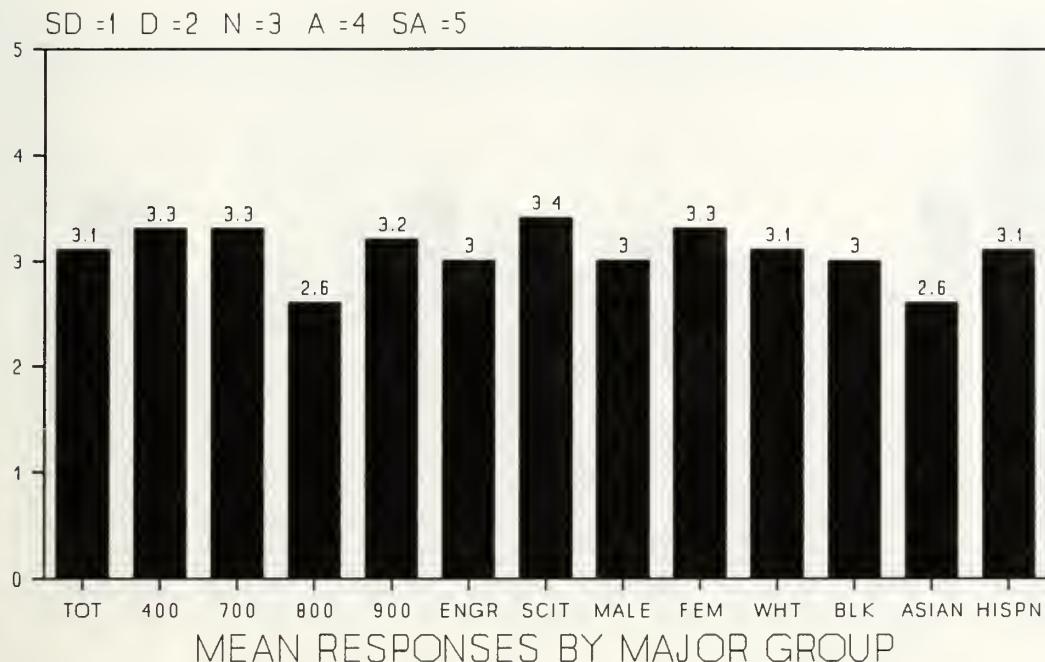
Figure 144

Figure 145 shows the average responses to Question 1-D by paygrade category, marital status, and work experience at NAC. The average response by paygrade category indicates that the GS-9 paygrade group is the only group which is inclined to slightly disagree with the statement. The other paygrade groups are either neutral toward the statement or are inclined to agree to some extent with the statement. The GS-7 paygrade group is inclined to agree with the statement much more so than any other paygrade group. Only one GS-5 responded to this question.

QUESTION 1-D
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP

Figure 145

Figure 146 shows the average response to Question 1-D by age group. The comparison of average responses by age group indicates that the three highest age groups are inclined to disagree to some extent with the statement. All other age groups are inclined to agree with the statement to some extent. The 21-25 year old age group is inclined to agree with the statement much more so than any other age group.

206

QUESTION 1-D
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
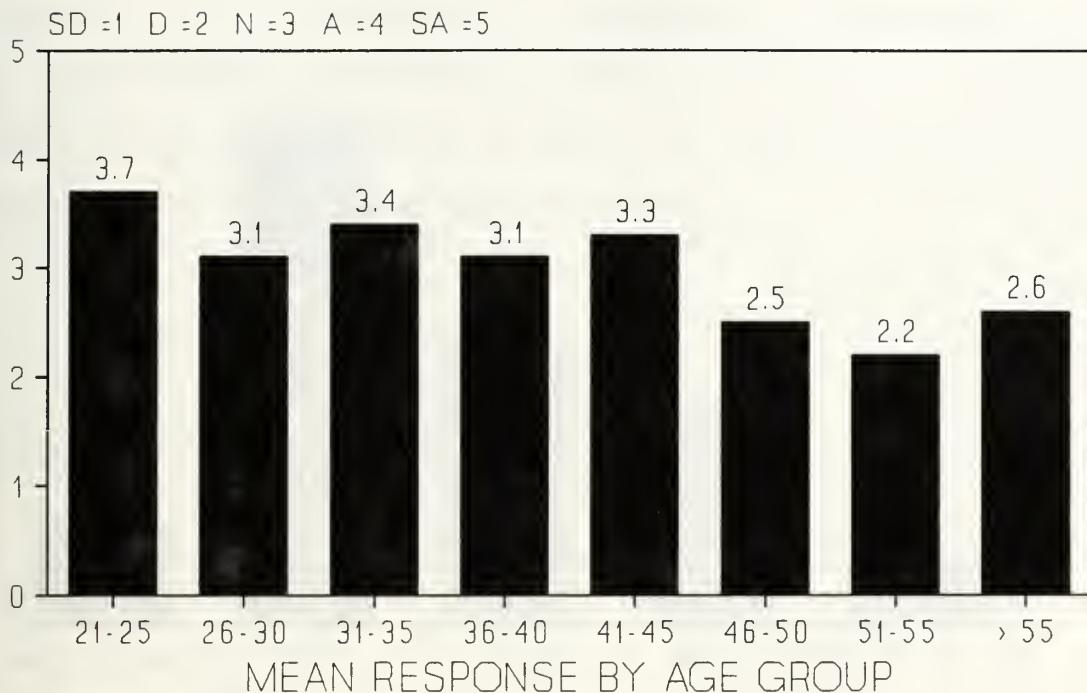
Figure 146

(5) *Question 1-E Statement: In general, I believe the courses have led to increased responsibilities.*

Figure 147 shows the frequency of all responses for Question 1-E. Fifty-one percent of those surveyed said that they were inclined to agree to some extent with the statement, 25% said they were neutral toward the statement, and 24% said they were inclined to disagree to some extent with the statement.

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QUESTION 1-E
ALL RESPONSES
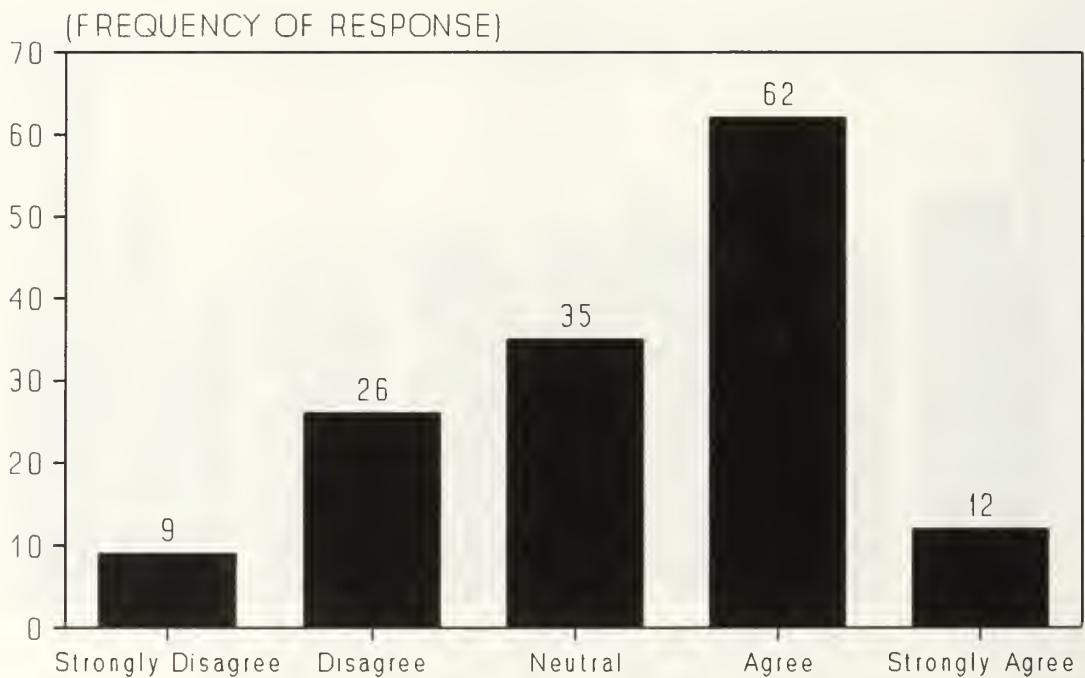
Figure 147

Figure 148 shows the average responses for Question 1-E by the total sample population, department, job category, gender, and ethnicity. The average response by the total sample population indicates that the sample population is slightly inclined to agree with the statement.

The comparison of average responses by department shows that Department 800 is inclined to be neutral toward the statement, whereas, all the other departments are inclined to agree with the statement to some extent. Department 700 is

inclined to agree with the statement much more so than the other deparments.

There is very little difference of opinion concerning Question 1-E by job category or gender.

The average responses by ethnicity shows that the Asian ethnic group is inclined to agree to a lesser extent with the statement than the other ethnic groups.

QUESTION 1-E
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
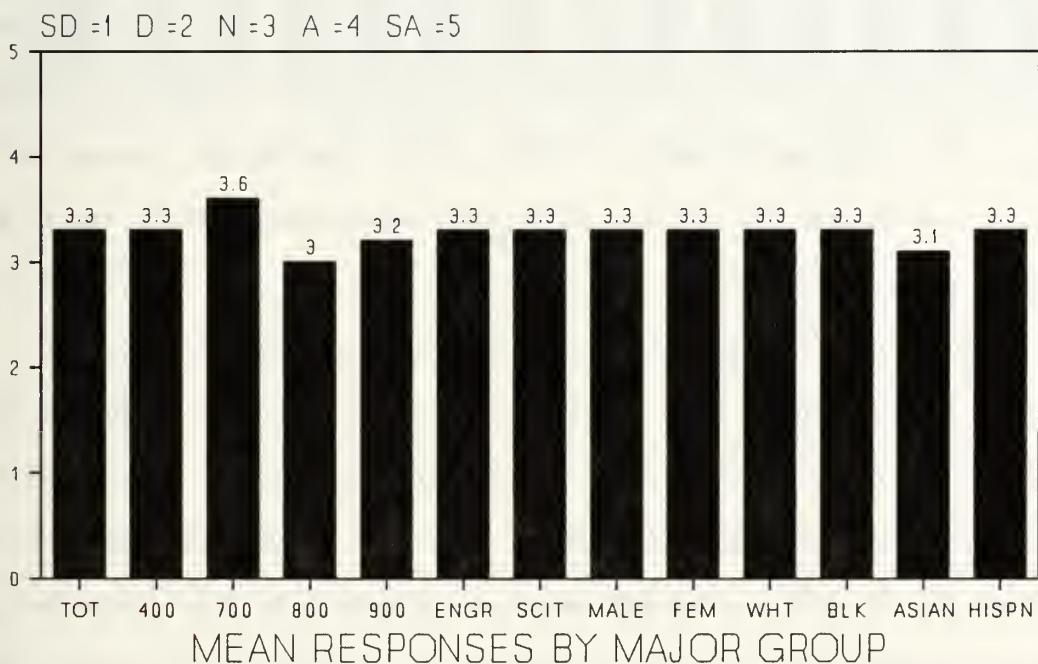
Figure 148

Figure 149 shows the average responses for Question 1-E by paygrade category, marital status, and work experience at NAC. The average responses by paygrade category indicates that the GS-9 paygrade group is inclined to slightly disagree with the statement, whereas, all the other paygrade category groups are inclined to agree with the statement to some extent.

The average response by marital status shows that married respondents are inclined to agree with the statement more so than are single respondents.

The comparison of average responses by work experience at NAC indicates that the 11-15 years of experience at NAC group is inclined to slightly disagree with the statement, whereas, the other experience groups are inclined to agree to some extent with the statement. The 16-20 years of experience group is inclined to agree with the statement much more so than any other group.

QUESTION 1-E
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
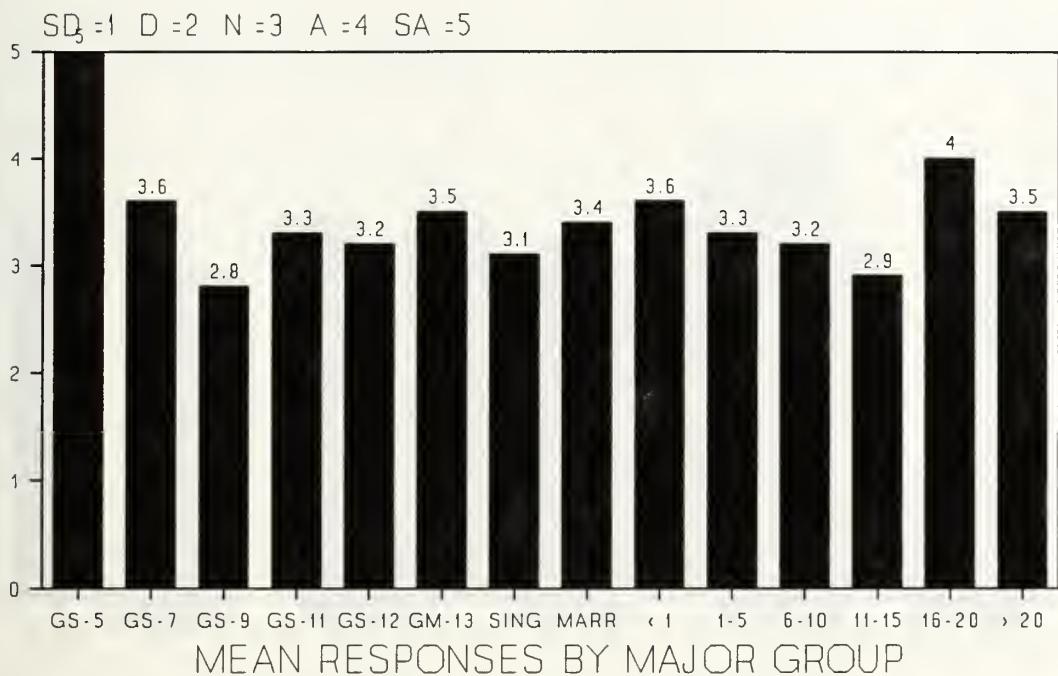
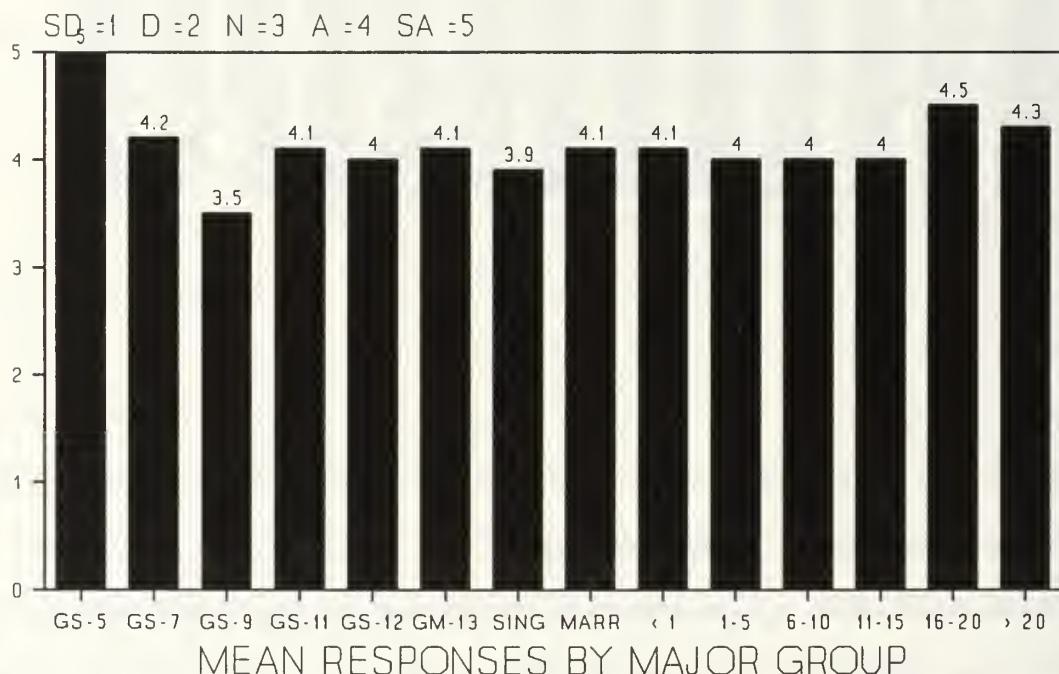**Figure 149**

Figure 150 shows the average response to Question 1-E by age group. The average response by age group shows that the 51-55 year old group is inclined to be neutral toward the statement, whereas, all the other age groups are inclined to agree with the statement to some extent. The 21-25 year old age group is inclined to agree with the statement slightly more so than any other age group.

QUESTION 1-E
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
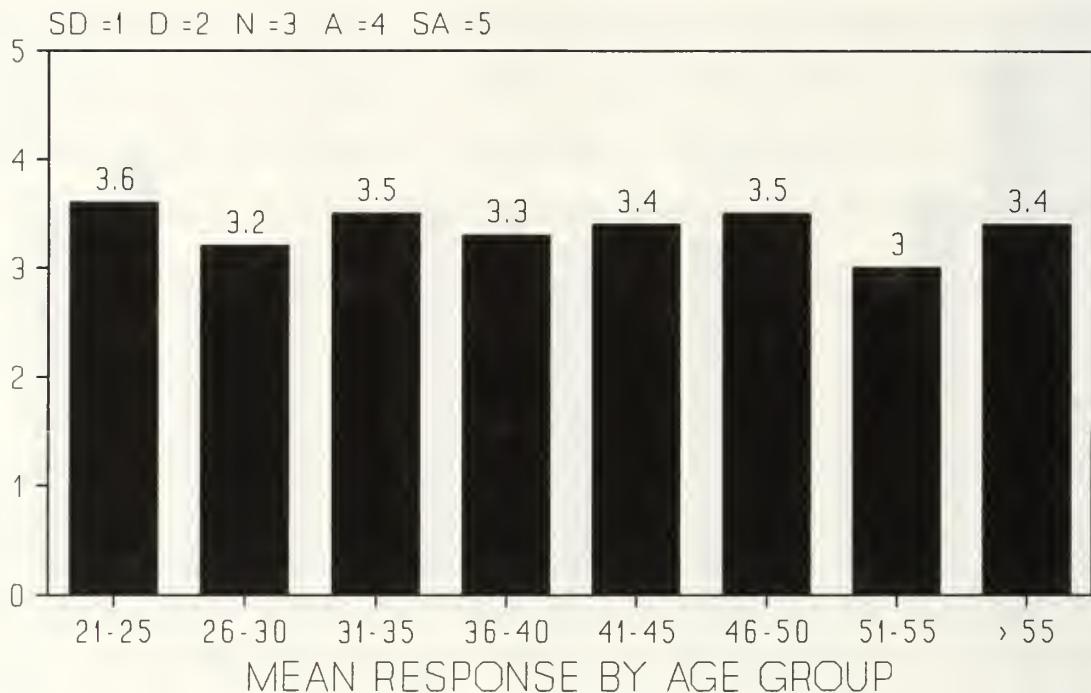
Figure 150

(6) *Question 1-F Statement: In general, the courses have enhanced my marketability with other agencies/firms.*

Figure 151 shows the frequency of all responses to Question 1-F. Fifty-five percent of those surveyed were inclined to agree with the statement to some extent, 31% were neutral toward the statement, and only 14% said they were inclined to disagree with the statement to some extent.

212

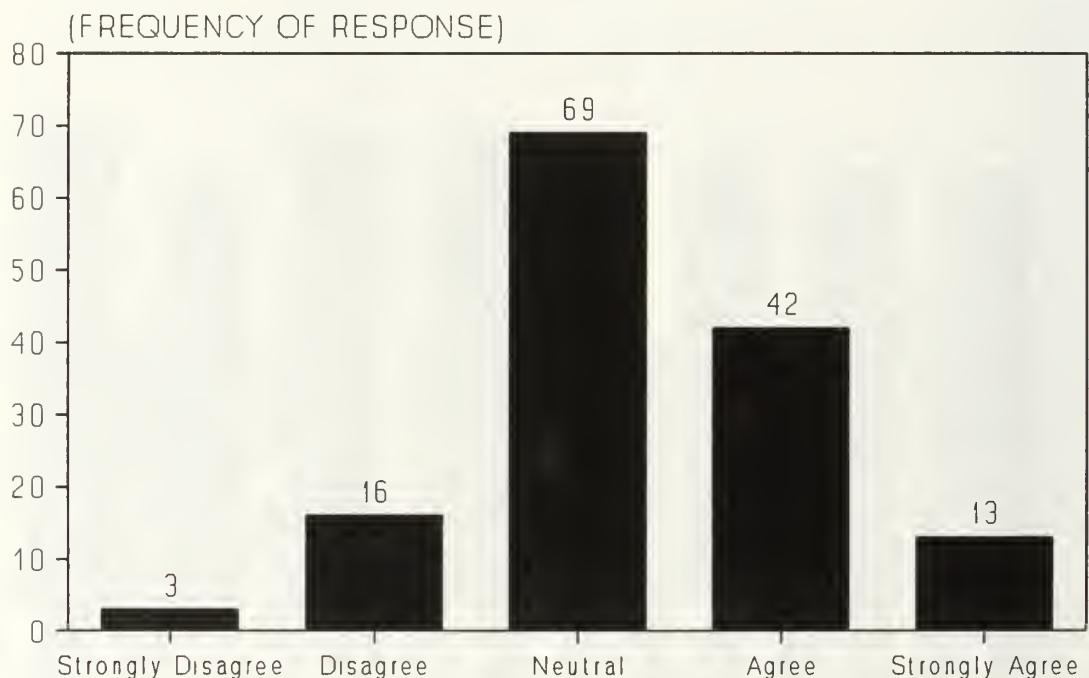# QUESTION 1-F
ALL RESPONSES

(FREQUENCY OF RESPONSE)
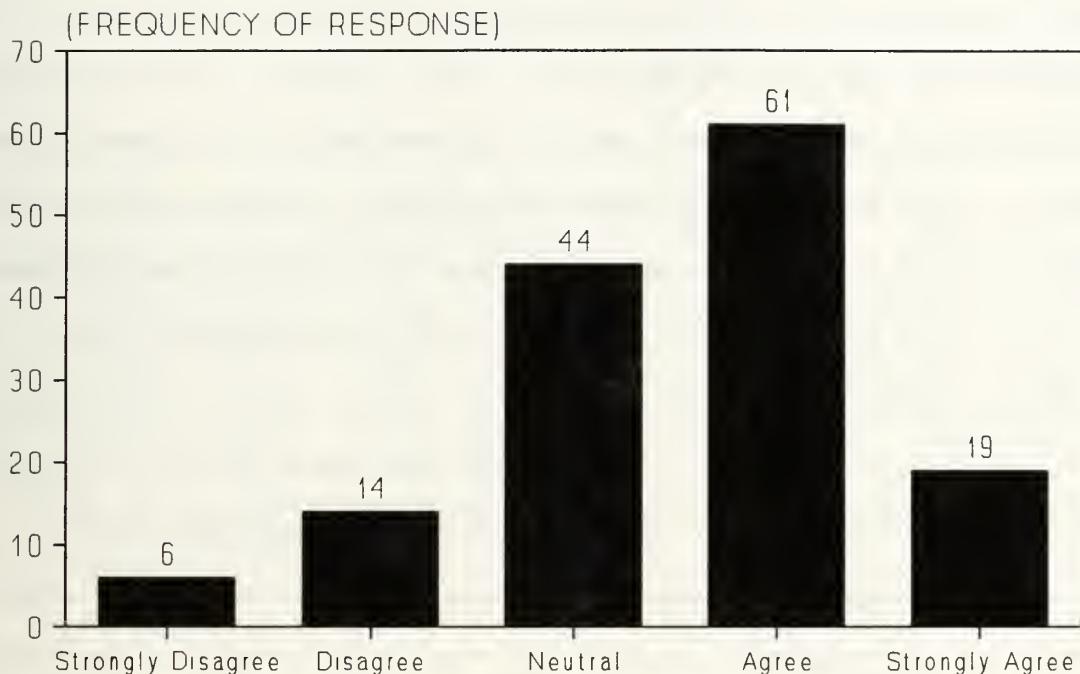
Figure 151

Figure 152 shows the average responses to Question 1-F by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

The comparison of average responses by department shows that Department 700 is inclined to agree with the statement slightly more so than the other departments. Department 900 is inclined to agree with the statement slightly less than the sample population average and the other departments.

213

The average response by job category indicates that scientists are inclined to agree with the statement much more so than do engineers.

There is no difference of opinion concerning Question 1-F between males and females.

The comparison of ethnic group average responses shows that the Black ethnic group is inclined to agree to a much lesser extent with the statement than any other ethnic group.

QUESTION 1-F
BY TOTAL / DEPT / JOB CAT / GENDER / ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
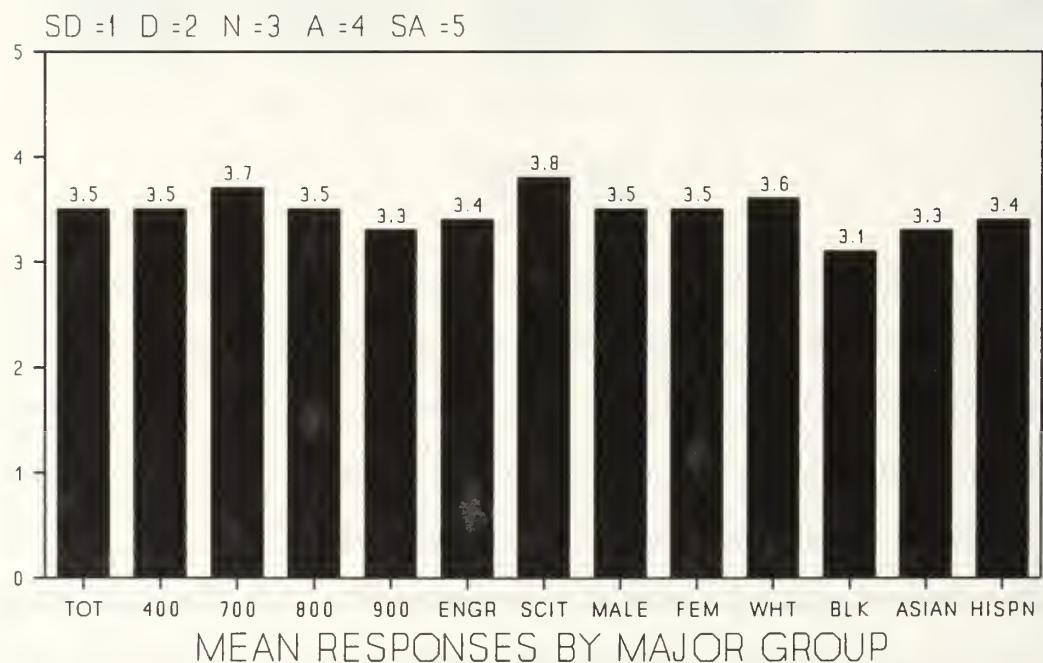
Figure 152

Figure 153 shows the average responses to Question 1-F by paygrade category, marital status, and work experience at NAC. The average response by paygrade category indicates that the GS-5 and GS-9 respondents are inclined to be neutral toward the statement, whereas, the other paygrade groups are inclined to agree with the statement to some extent. The GS-7 paygrade group is inclined to agree with the statement more so than any other paygrade group.

The average response by marital status shows that married respondents are inclined to agree more so with the statement than are single respondents.

The comparison of average responses by experience at NAC shows that the 11-15 years of experience group is less inclined to agree with the statement than any other group. The 16-20 years of experience group in inclined to agree with the statement more so than any other group.

QUESTION 1-F
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
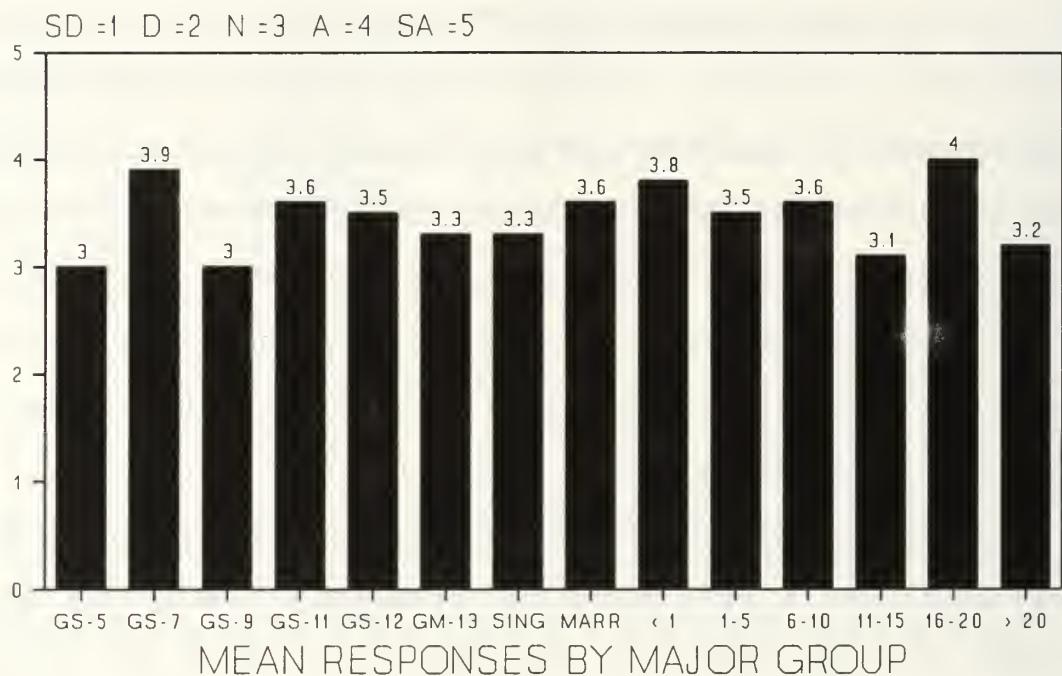
Figure 153

Figure 154 shows the average response to Question 1-F by age group. The average response of the 51-55 year old group indicates that this group is inclined to slightly disagree with the statement, whereas, all the other age groups are inclined to agree with the statement to some extent.

QUESTION 1-F
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
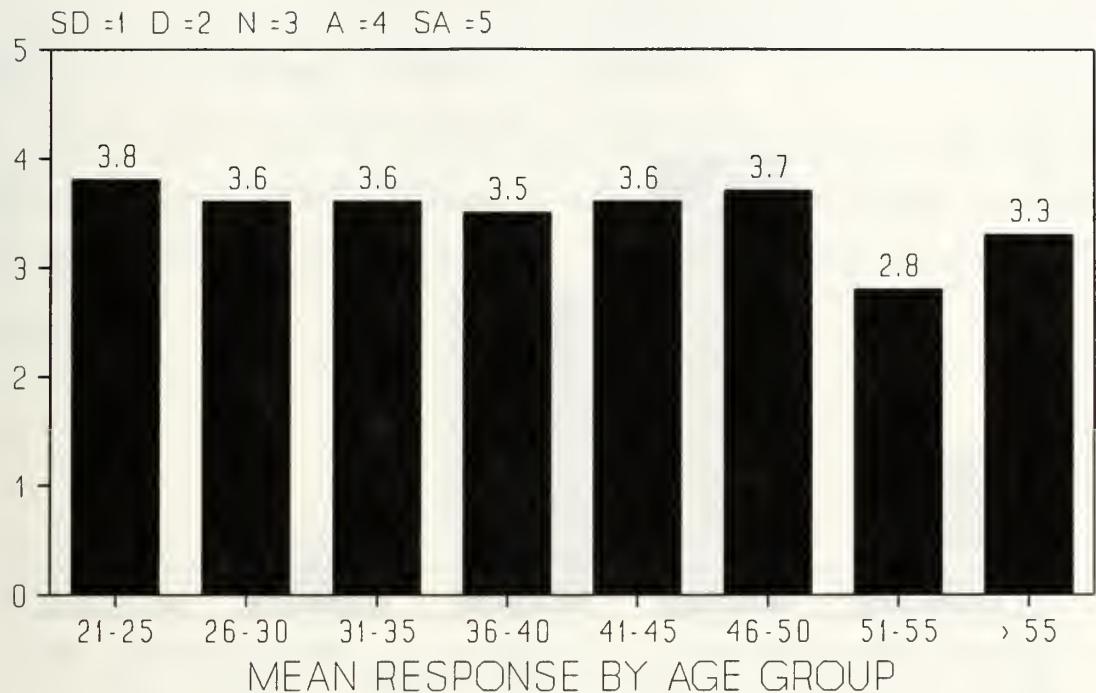
Figure 154

(7) *Question 1-G Statement: In general, the training courses I have taken make it more likely I will leave my NAC job for a job elsewhere (outside NAC).*

Figure 155 shows the frequency of all responses to Question 1-G. Sixty-one percent of those surveyed were inclined to disagree with the statement to some extent, 31% were neutral toward the statement, and only 8% were inclined to agree with the statement to some extent.

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QUESTION 1-G
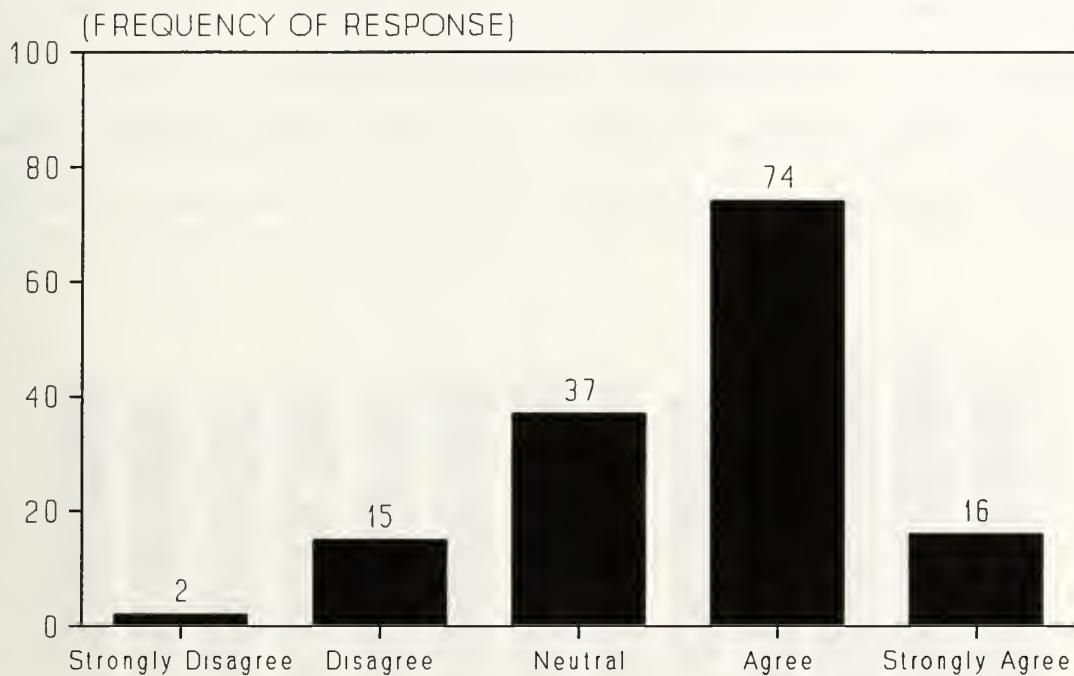## ALL RESPONSES

(FREQUENCY OF RESPONSE)
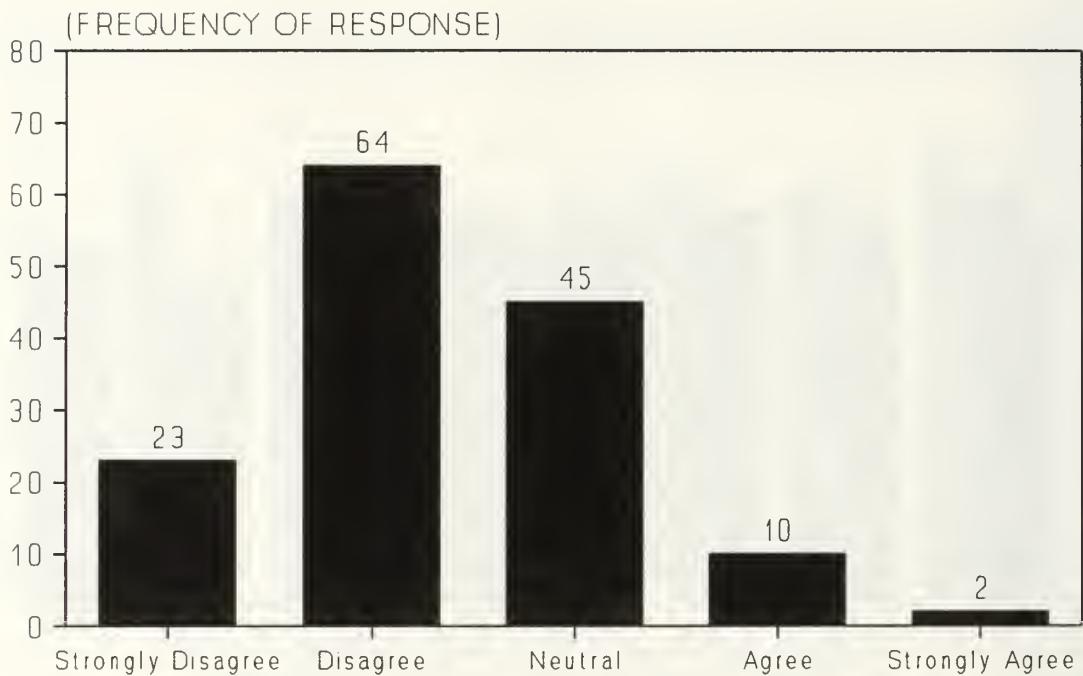
Figure 155

Figure 156 shows the average responses to Question 1-G by the total sample population, department, job category, gender, and ethnicity. The average response of the total sample population indicates that the sample population is inclined to disagree with the statement, but not strongly so.

The comparison of average responses by department shows that Department 400 is inclined to disagree with the statement slightly more so than the other departments.

The average response by job category indicates that engineers are inclined to disagree with the statement slightly more so than do scientists.

There is very little difference of opinion concerning Question 1-G between males and females.

The comparison of average responses by ethnic group shows that the Black ethnic group is inclined to disagree with the statement to a slightly lesser extent than any other ethnic group.

QUESTION 1-G
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5
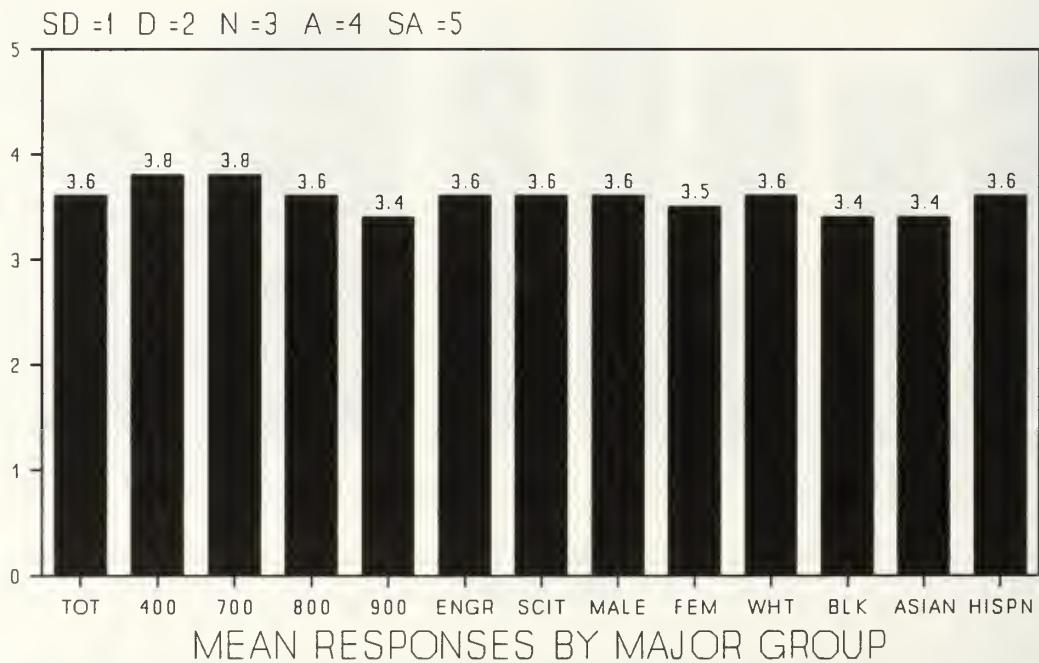

MEAN RESPONSES BY MAJOR GROUP
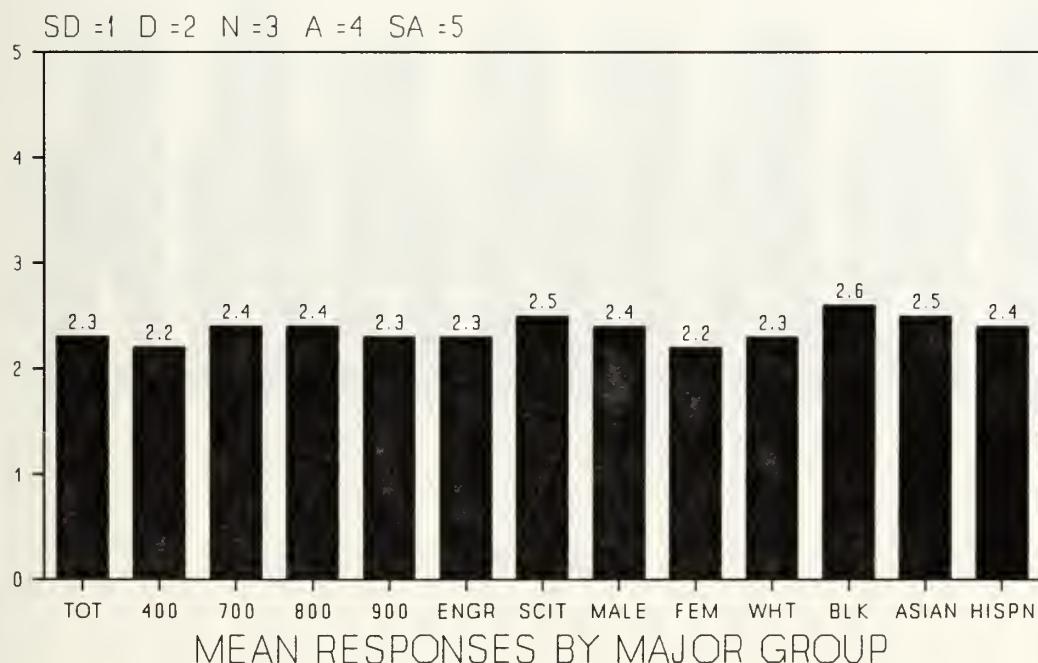
Figure 156

Figure 157 shows the average responses to Question 1-G by paygrade category, marital status, and work experience at NAC. The average response by paygrade category indicates that the managers are inclined to slightly disagree more with the statement than the other paygrade categories. Only one GS-5 responded to the statement.

QUESTION 1-G
BY PAYGRADE / MARITAL STATUS / EXPERIENCE

SD = 1 D = 2 N = 3 A = 4 SA = 5

MEAN RESPONSES BY MAJOR GROUP
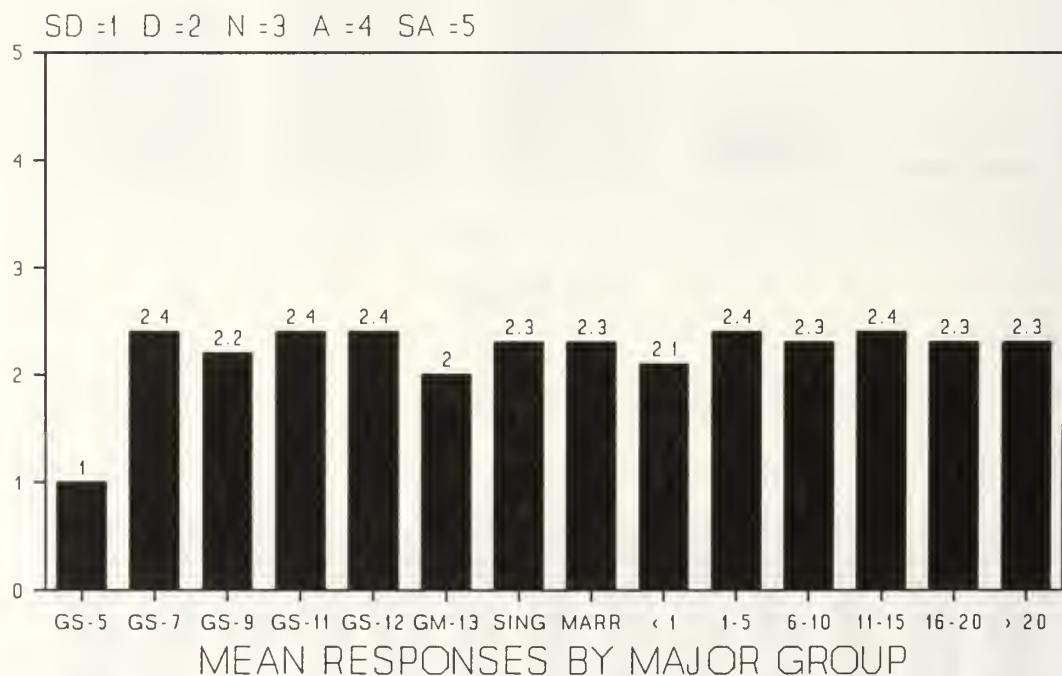
Figure 157

Figure 158 shows the average response to Question 1-G by age group. The average response of the 51-55 year old age group indicates that this group is inclined to disagree with the statement more so than any other age group.

QUESTION 1-G
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5
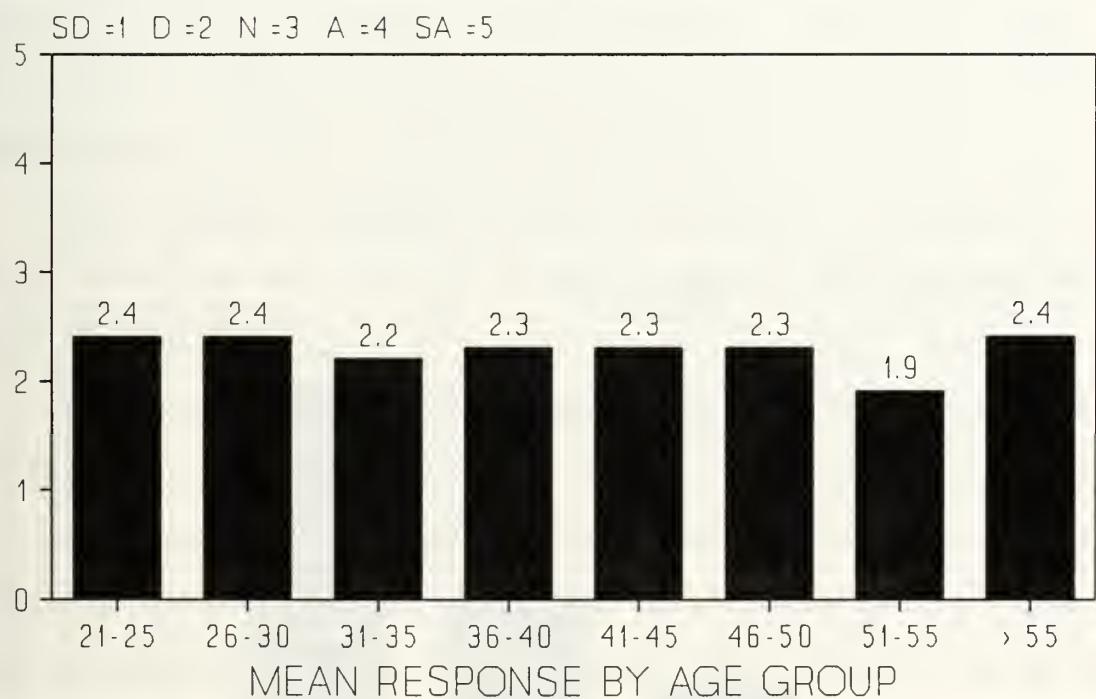
Figure 158

(8) *Question 1-H Statement: In general, the*
training courses I have taken have improved my credentials for
a better job at NAC.

Figure 159 shows the frequency of all responses
for Question 1-H.   Fifty percent of those surveyed were
inclined to agree with the statement to some extent, 25% were
neutral toward the statement, and 25% were inclined to
disagree with the statement to some extent.

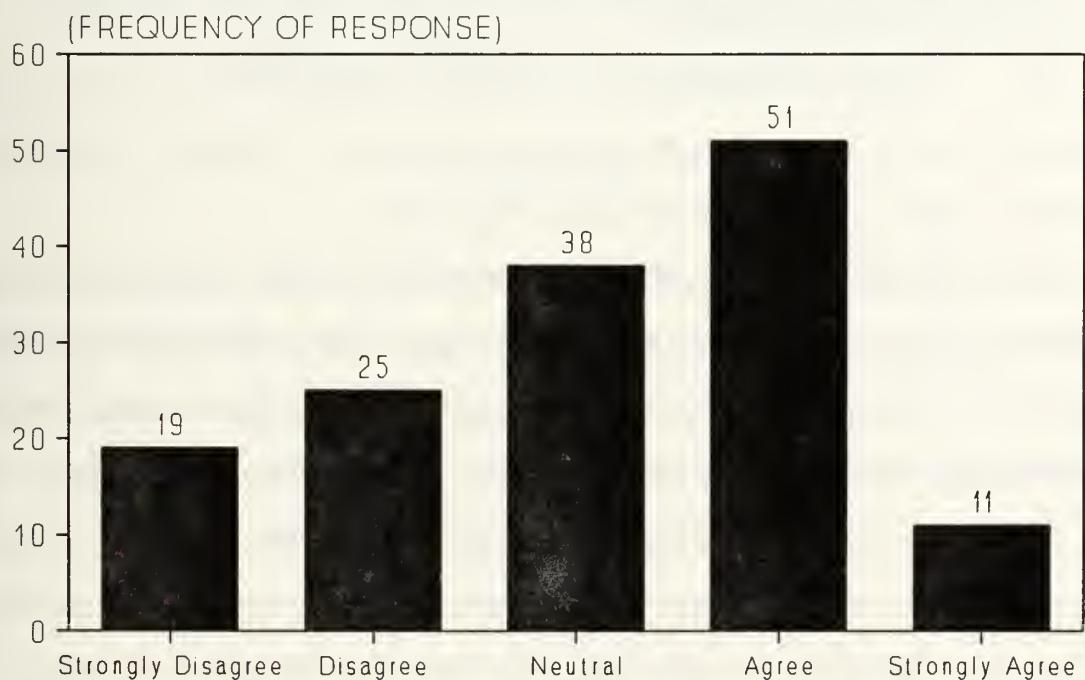## QUESTION 1-H
ALL RESPONSES

(FREQUENCY OF RESPONSE)
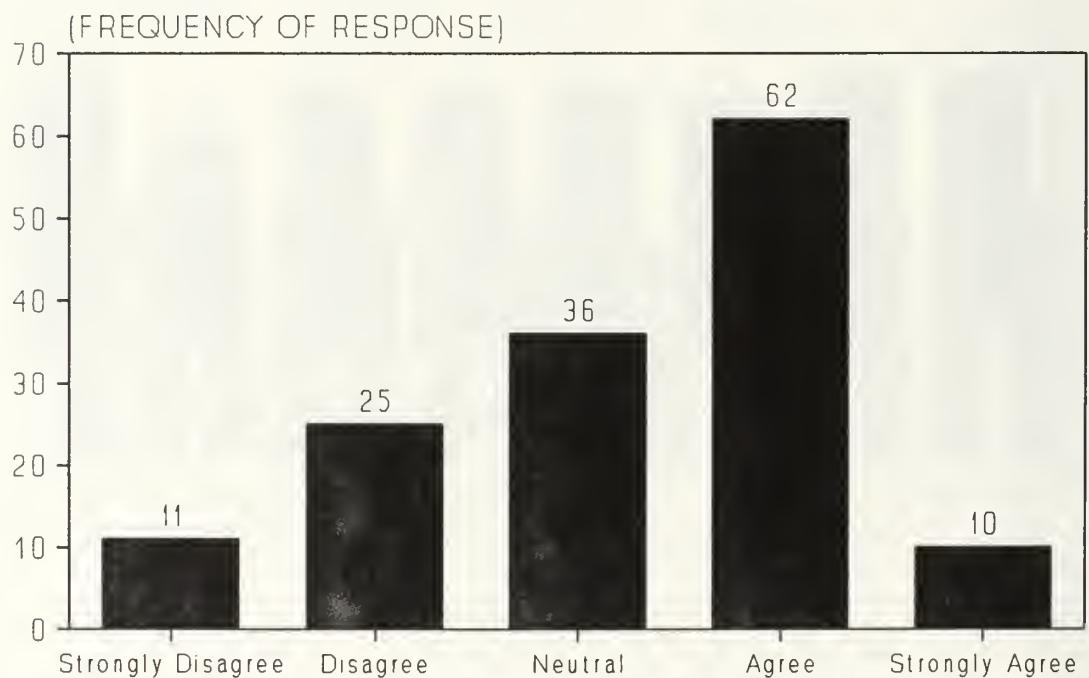
Figure 159

Figure 160 shows the average responses to Question 1-H by the total sample population, department, job category, gender, and ethnicity. The average response by the total sample population indicates that the sample population is inclined to slightly agree with the statement.

The comparison of average responses by department shows that Department 800 is inclined to be neutral toward the statement, whereas, the other departments are inclined to agree with the statement to some extent. Department 400 is inclined to agree with the statement more so than any other department.

The average response by job category indicates that scientists are much more inclined to agree with the statement than do engineers.

The average response by gender indicates that females are inclined to slightly agree more with the statement than males.

The comparison of average responses by ethnic group shows that the Asian ethnic group is inclined to be neutral toward the statement, whereas, the Hispanic ethnic group is inclined to agree with the statement much more than any other ethnic group.

QUESTION 1-H
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
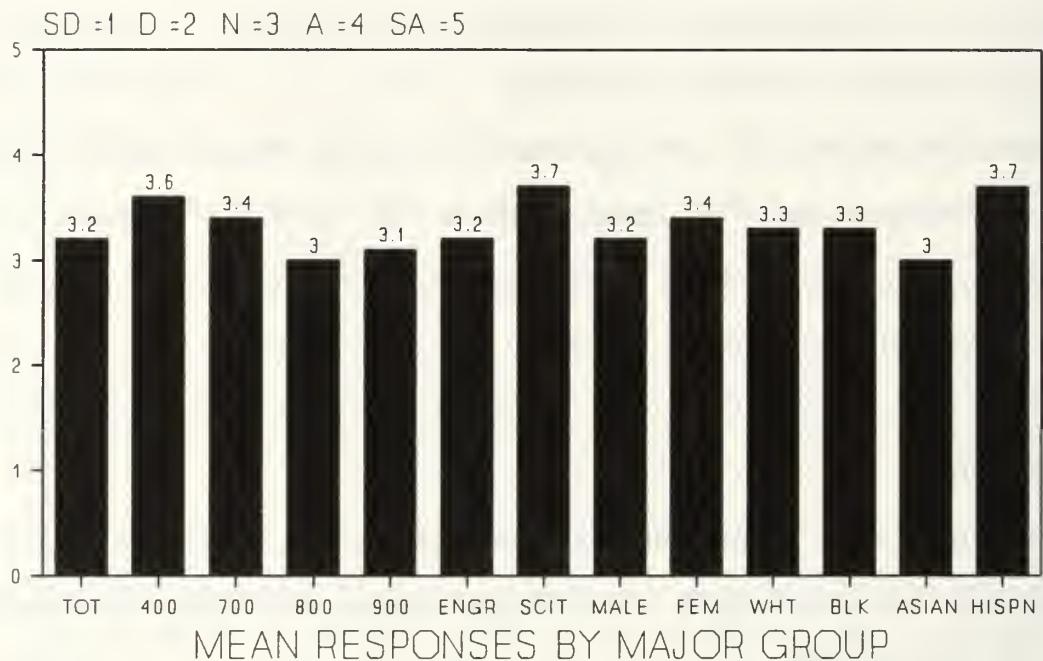
Figure 160

Figure 161 shows the average responses to Question 1-H by paygrade category, marital status, and work experience at NAC. The comparison of average responses by paygrade category indicates that the GS-11 group is inclined to agree slightly less with the statement than the other paygrade categories. Only one GS-5 responded to this statement.

The average response by marital status shows that married respondents are slightly more inclined to agree with the statement than do single respondents.

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The comparison of the average responses by experience at NAC groups shows that the 11-15 years at NAC group is inclined to be neutral toward the statement, whereas, the other experience categories are inclined to agree with the statement to some extent.

QUESTION 1-H
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
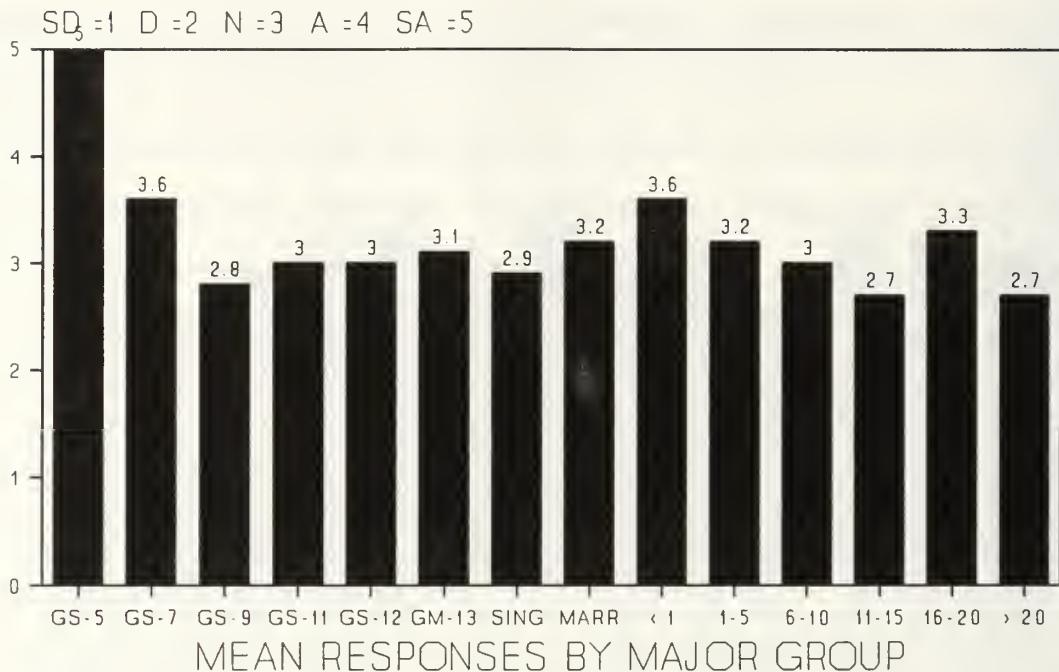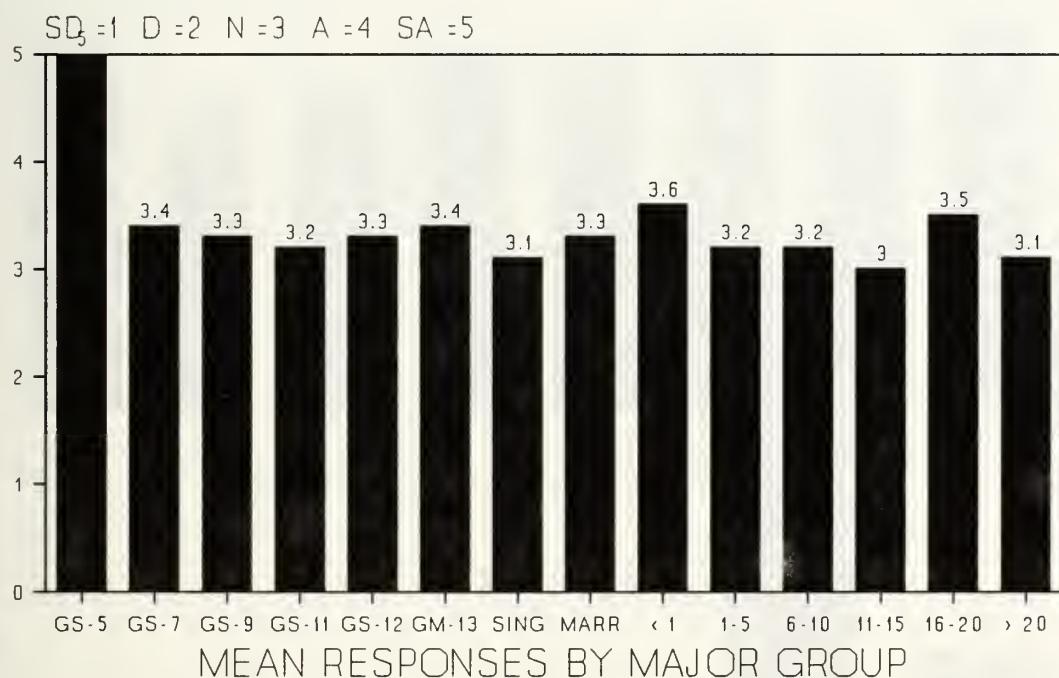
Figure 161

Figure 162 shows the average response to Question 1-H by age group. The average response by age group indicates that the 46-50 and 51-55 year old groups are inclined to disagree with the statement to some extent, whereas, the other age

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groups are inclined to agree with the statement to some extent.

QUESTION 1-H
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5
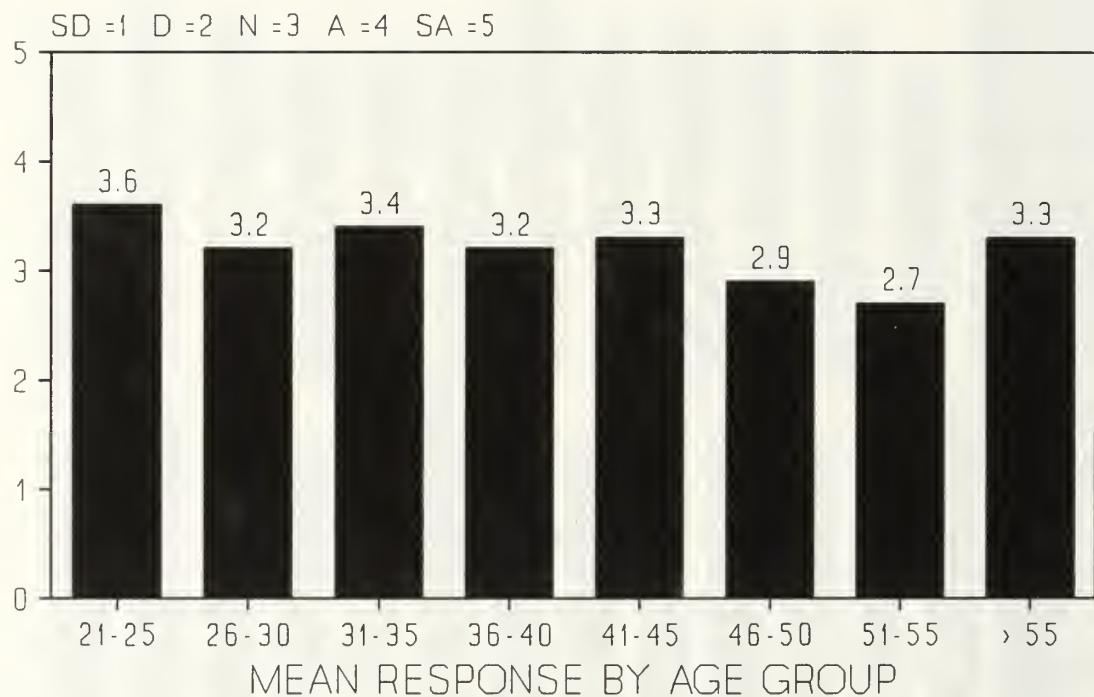
Figure 162

(9) Question 1-I Statement: I have gotten new ideas/new approaches to my job as a benefit of the training I have received.

Figure 163 shows the frequency of all responses to Question 1-I.   Eighty percent of those surveyed were inclined to agree with the statement to some extent, 13% were neutral toward the statement, and only 7% were inclined to disagree with the statement to some extent.

QUESTION 1-I
ALL RESPONSES

(FREQUENCY OF RESPONSE)
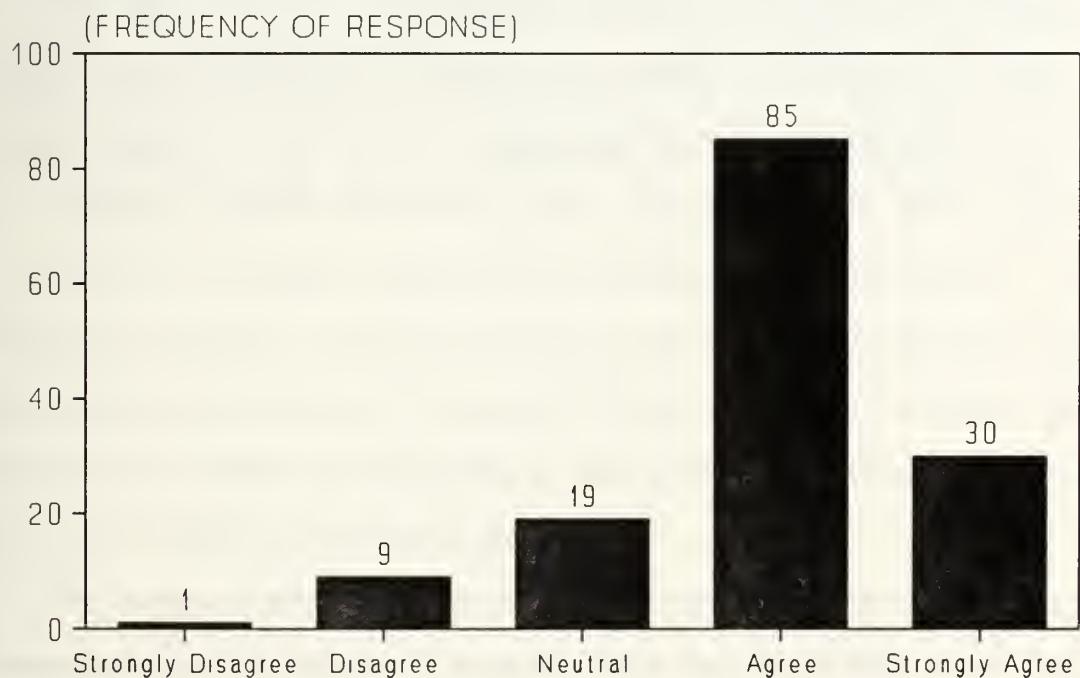
Figure 163

Figure 164 shows the average responses for Question 1-I by the total sample population, department, job category, gender, and ethnicity. The average response by the total sample population indicates that the sample population is inclined to agree with the statement, but not strongly so.

The average response by department shows that Department 900 is inclined to agree with the statement to a lesser degree than any of the other departments.

The average response by job category indicates that scientists are inclined to agree with the statement slightly more so than do engineers.

There is very little difference of opinion concerning Question 1-I between males and females.

The comparison of average responses by ethnic group shows that the Hispanic ethnic group is inclined to agree more strongly with the statement than any other ethnic group.

QUESTION 1-I
BY TOTAL/DEPT/JOB CAT/GENDER/ETHNICITY

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
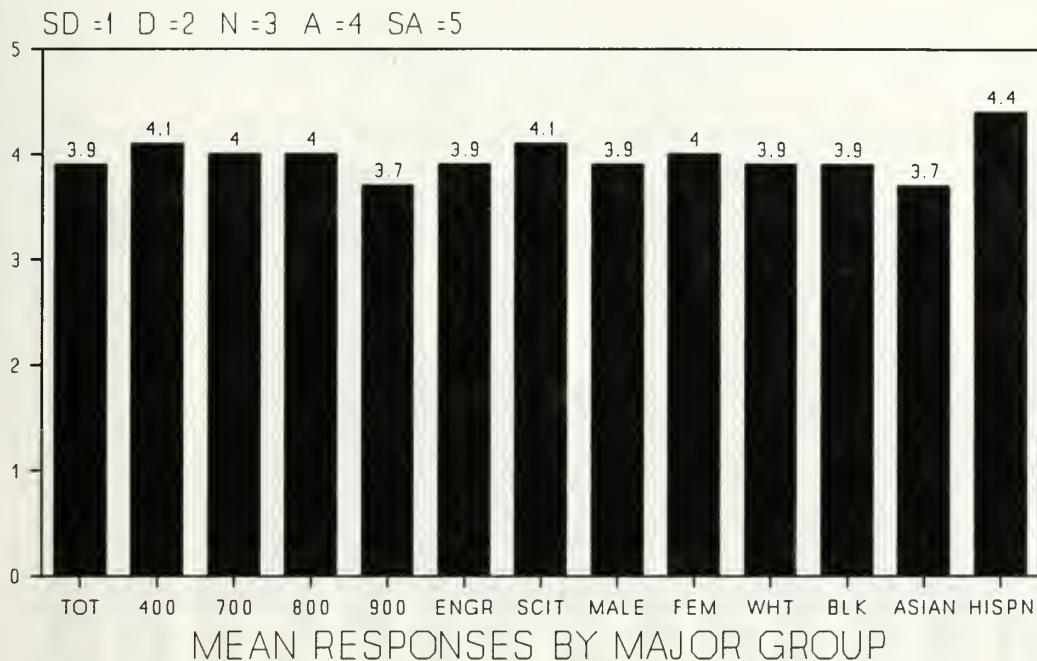
Figure 164

Figure 165 shows the average responses to Question 1-I by paygrade category, marital status, and work experience at NAC. The average response by paygrade category shows that the GS-9 group agrees with the statement to a lesser degree than any of the other paygrade categories.

The average response by marital status shows that married respondents are inclined to agree with the statement much more so than do single respondents.

The comparison of average responses by experience at NAC categories indicates that the 11-15 years of experience group

is inclined to agree much less with the statement than the other experience categories.

QUESTION 1-I
BY PAYGRADE/MARITAL STATUS/EXPERIENCE

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSES BY MAJOR GROUP
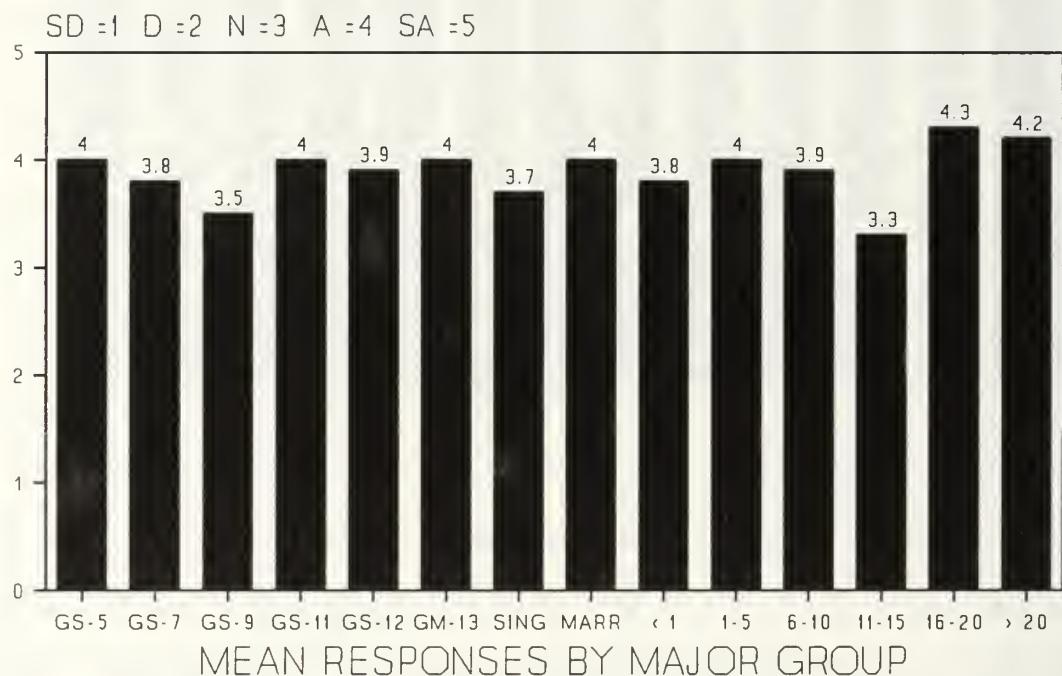
Figure 165

Figure 166 shows the average response to Question 1-I by age group. The average response by age group indicates that the 41-45 and 51-55 year old age group is not as strong in agreement with the statement as the other age groups are.

QUESTION 1-1
BY AGE GROUP

SD =1 D =2 N =3 A =4 SA =5

MEAN RESPONSE BY AGE GROUP
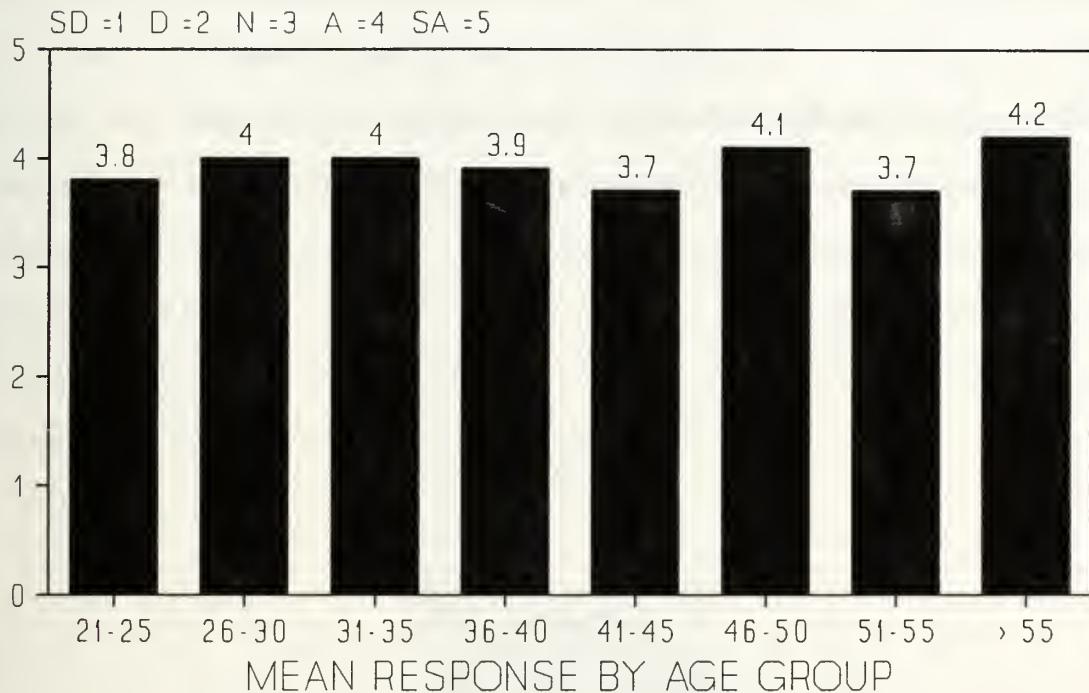
Figure 166

b. *Question 2:* **For the work you are doing right now,**

what percentage of your training came from:

School (prior to being hired)

"On-The-Job" training

"On-The-Job" experience

NAC-sponsored formal training

Figure 167 shows the percentages of various

categories of training which are being applied to the sample

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population's current work. The average response for the total sample population indicates that "On-The-Job" experience accounts for 37% of the knowledge applied to the sample population's current work, 31% of the knowledge comes from School (prior to being hired), 18% comes from "On-The-Job" training, and the remaining 14% of the knowledge applied to the sample population's current work came from NAC-sponsored formal training.

QUESTION 2
ALL RESPONSES
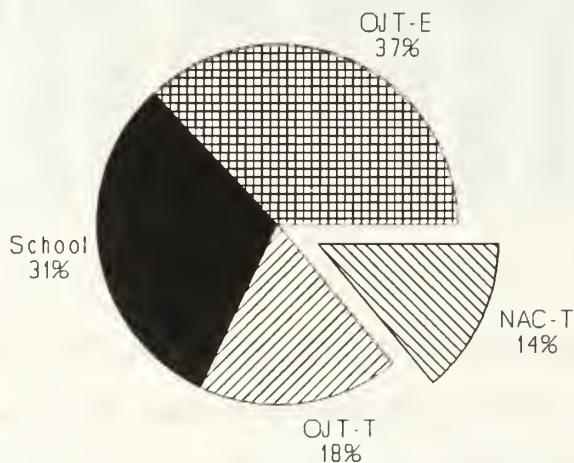
Figure 167

c. *Question 3: Do you have all the training you need in order to know what to do to support NAC's organizational strategies of:*

DECREASED CYCLE TIME

INCREASED CUSTOMER SATISFACTION

LEADER IN AVIONICS AND MANUFACTURING EXCELLENCE

Figure 168 shows the frequency/percentage of no/yes responses to Question 3 (Decreased Cycle Time) for the total sample population. Sixty-seven percent of those surveyed said that they did not have all the training needed to support the decreased cycle time strategy.

QUESTION 3
DECREASED CYCLE TIME

No 94
67%

Yes 46
33%
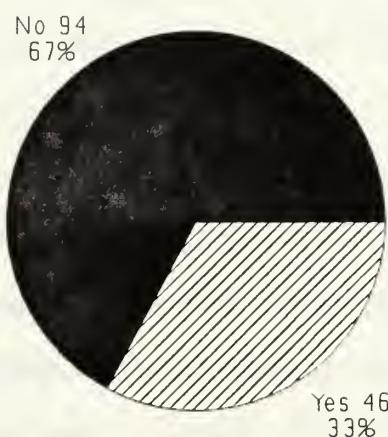
Figure 168

Figure 169 shows the frequency/percentage of no/yes responses to Question 3 (Increased Customer Satisfaction) for the total sample population. Fifty-seven percent of those surveyed said they did not have the needed training to support the increased customer satisfaction strategy.

QUESTION 3
INCREASED CUSTOMER SATISFACTION

No 81
57%

Yes 60
43%

Figure 169

Figure 170 shows the frequency/percentage of no/yes responses to Question 3 (Leader in Avionics and Manufacturing Excellence) for the total sample population. Seventy-one percent of those surveyed said that they did not have all the training needed to support the leader in avionics and manufacturing excellence strategy.

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QUESTION 3
LEADER IN AVIONICS

No 100
71%

Yes 40
29%
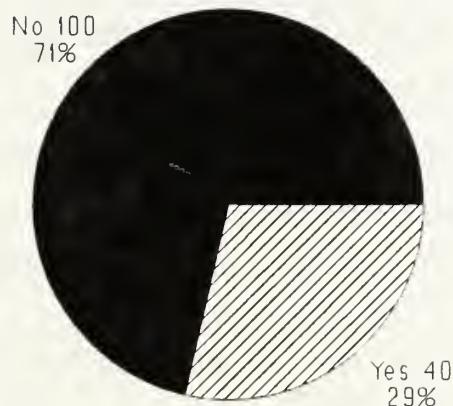
Figure 170

d. *Question 4: If you answered "No" to any of the strategies in Question 3, what training do you need and why can't you get it?*

Table 15 provides a list of comments from the total sample population who answered "No" to Question 3. The list only includes reasons why they can not get the training to support the organizational strategies listed in Question 3. Only a few of the respondents listed what training they needed and therefore this information is not included in Table 15.

TABLE 15.--REASONS WHY STRATEGIC TRAINING IS NOT AVAILABLE

Totals	Comments by the Total Sample Population
18	Don't know what I need.
16	Don't know what training is available.
14	NAC doesn't offer courses on these strategies.
16	I will always need more training.
6	Lack of money.
5	Much too busy.
3	Lack of time.
2	NAC doesn't offer the courses I need.
2	No one asked me to attend.
2	I need training on what we can do to support these strategies!
2	Training isn't the answer to these strategies.
1	I haven't signed up for training in those areas.
1	Additional training will not help unless we are supported.
1	NAC has no organizational strategies!
1	NAC changes their strategy every few months.
1	I don't know what the organizational strategies are.
1	I get no help in finding it.
1	The courses are not made available.
1	Refusal of "old-timers" who refuse to adopt the continuous improvement culture.

e. Question 5:   To what extent do you believe NAC-sponsored training is connected to your career development?

Figure 171 shows the frequency of all responses to Question 5.   Forty-three percent of those surveyed said that they believe most of NAC-sponsored training is connected to their career development, 41% said that a little of the training is connected to their career development, 10% said all of the NAC-sponsored training is connected to their career development, 3% said none of the NAC-sponsored training is connected to their career development, and 3% said they just did not know.

QUESTION 5
ALL RESPONSES

(FREQUENCY OF RESPONSE)
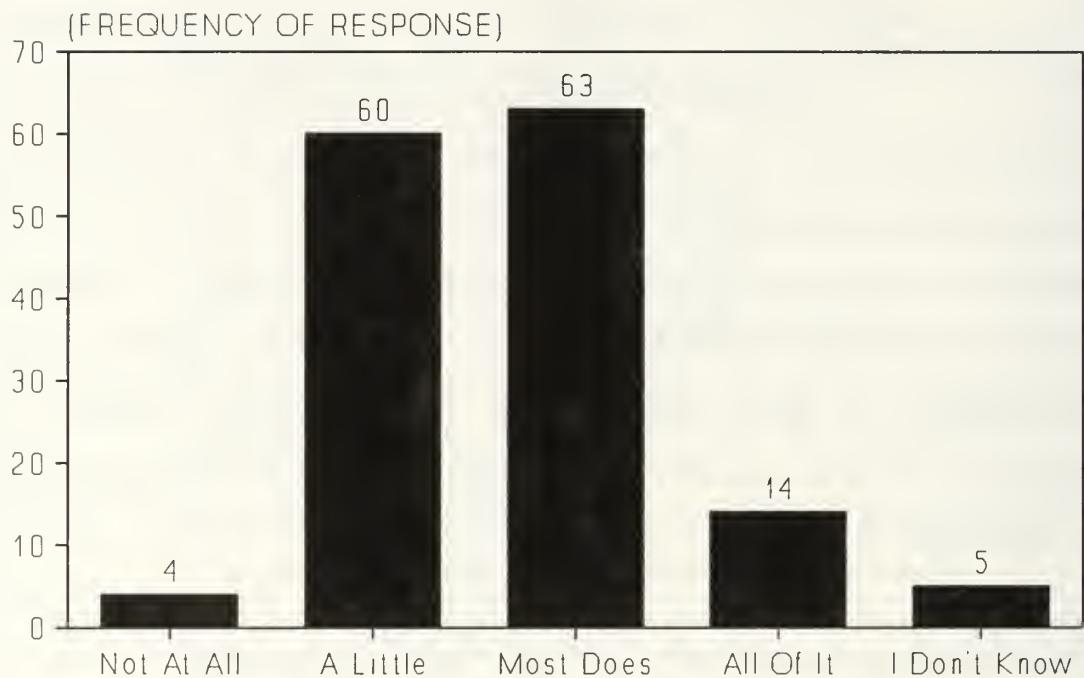
Figure 171

Figure 172 shows the frequency of response to Question 5 by Department 400. Forty-six percent of those surveyed in Department 400 said that most of the NAC-sponsored training is connected to their career development, 32% said that a little of it is, 18% said that all of it is, 4% said that they just did not know, and no one said that none of it is connected to their career development.

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QUESTION 5
DEPARTMENT 400

(FREQUENCY OF RESPONSE)
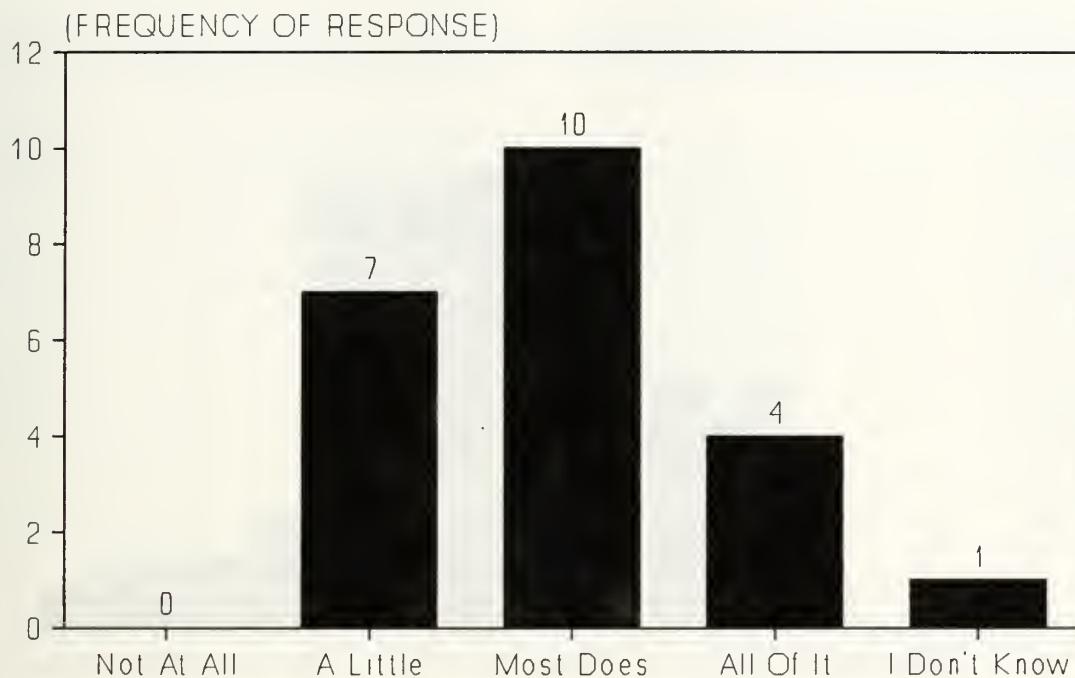
Figure 172

Figure 173 shows the frequency of response to Question 5 by Department 700. Fifty-three percent of those surveyed in Department 700 said that most of the NAC-sponsored training is connected to their career development, 29% said a little of it is, 13% said that all of it is, 5% said that they just did not know, and no one in Department 700 said that none of the NAC-sponsored training is connected to their career development.

QUESTION 5
DEPARTMENT 700

(FREQUENCY OF RESPONSE)
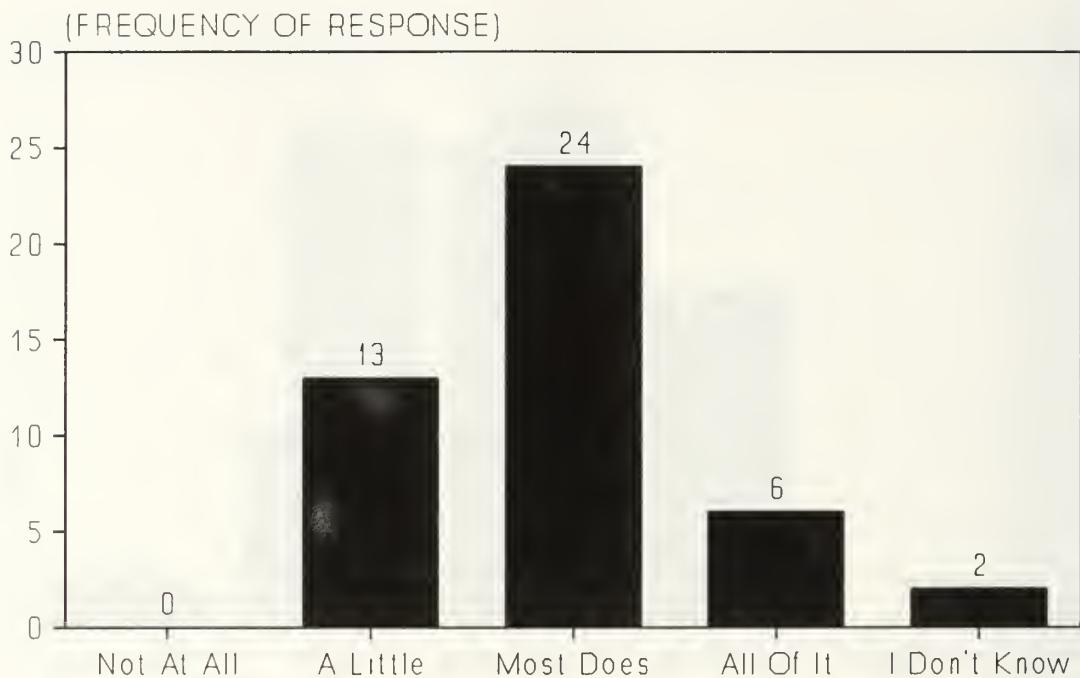
Figure 173

Figure 174 shows the frequency of response to Question 5 by Department 800. Forty-five percent of those surveyed in Department 800 said that a little of the NAC-sponsored training is connected to their career development, 41% said that most of it is, 7% said that none of it is, 5% said that all of it is, and 2% said that they just did not know.

QUESTION 5
DEPARTMENT 800

(FREQUENCY OF RESPONSE)
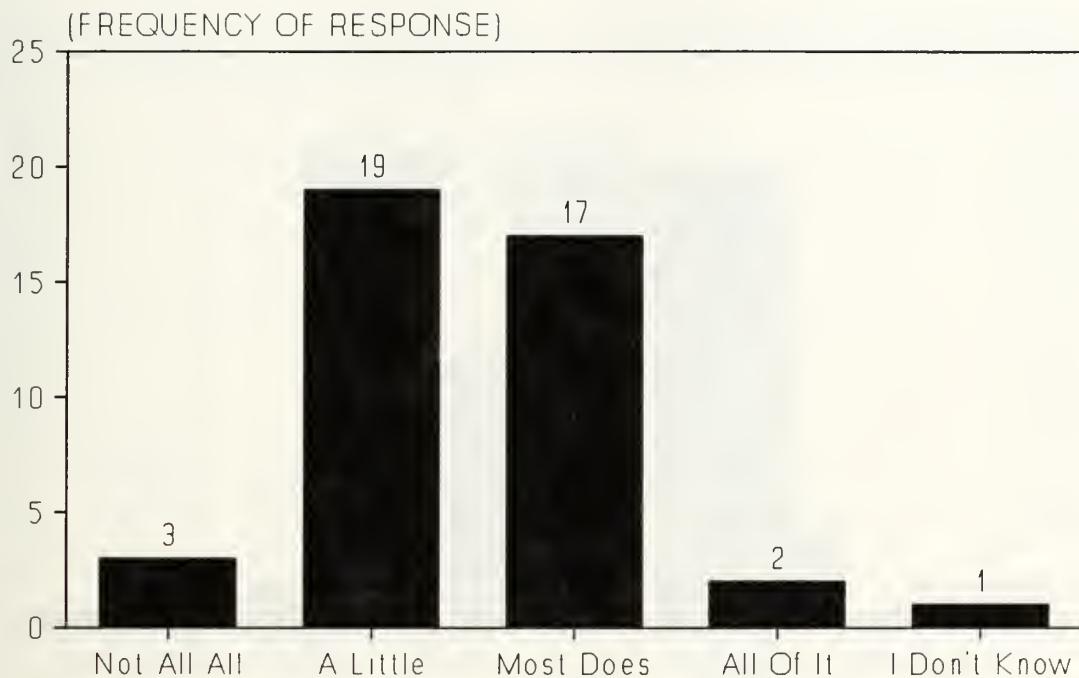
Figure 174

Figure 175 shows the frequency of response to Question 5 by Department 900. Fifty-seven percent of those surveyed in Department 900 said that a little of the NAC-sponsored training is connected to their career development, 33% said that most of it is, 5% said that all of it is, 3% said that none of it is, and 2% said that they just did not know.

QUESTION 5
DEPARTMENT 900

(FREQUENCY OF RESPONSE)
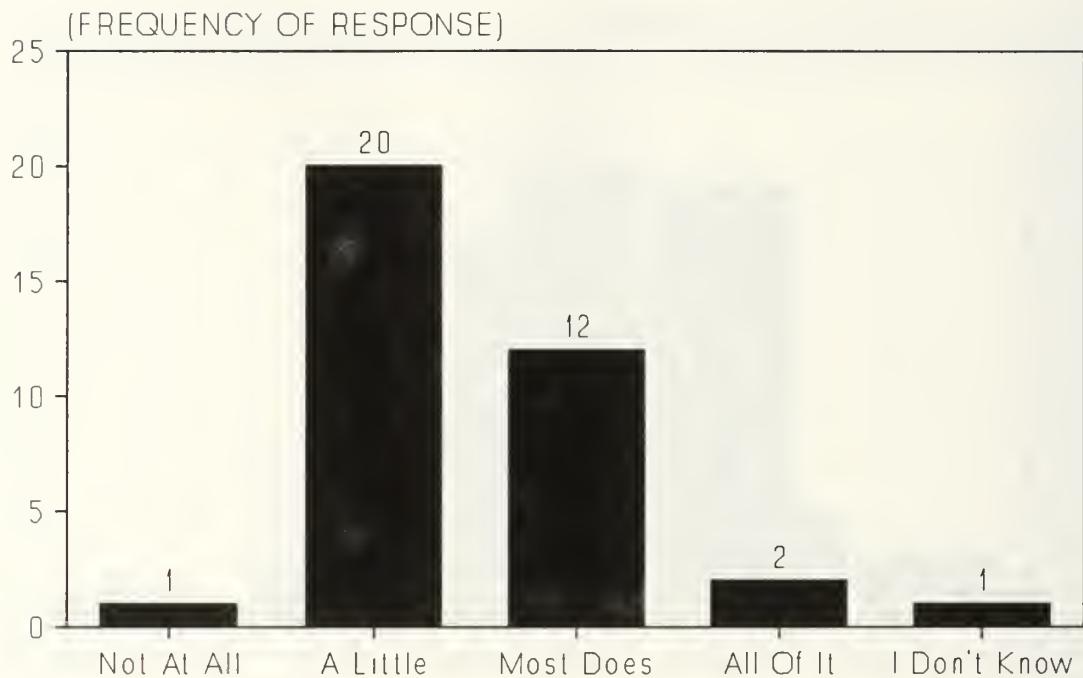
Figure 175

Figure 176 shows the frequency of response to Question 5 by the engineer community. Forty-two percent of the engineers said that most of the NAC-sponsored training is connected to their career development, 42% said that a little of it is, 9% said that all of it is, 4% said that they just did not know, and 3% said that none of the NAC-sponsored training is connected to their career development.

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QUESTION 5
ENGINEERS

(FREQUENCY OF RESPONSE)
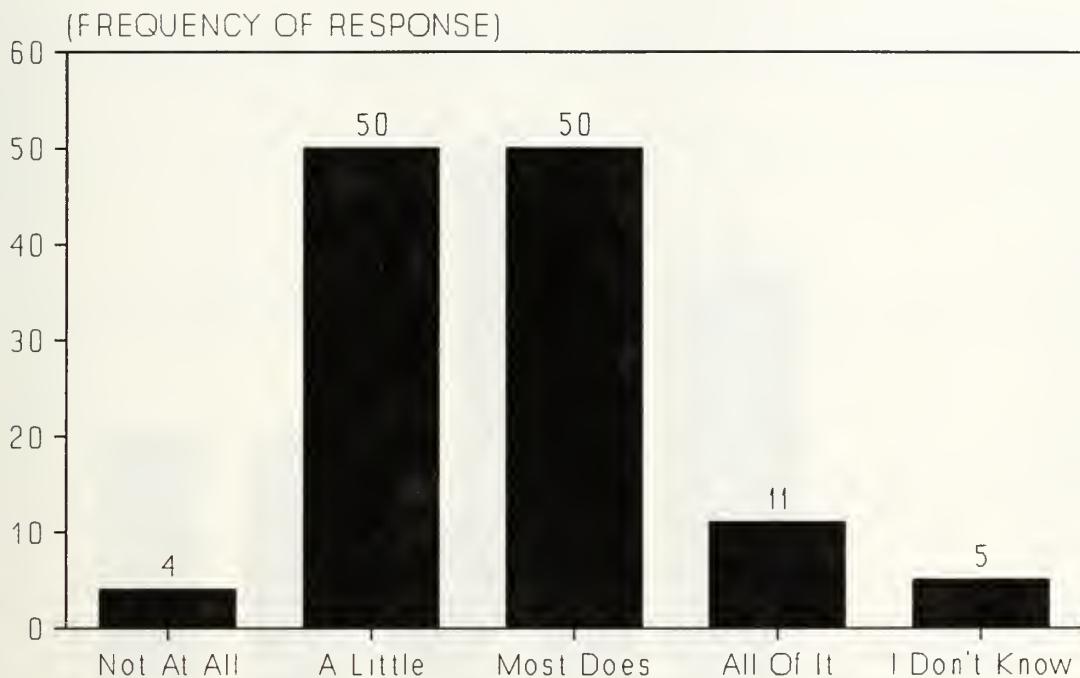
Figure 176

Figure 177 shows the frequency of response to Question 5 by the scientist community. Fifty percent of the scientists surveyed said that most of the NAC-sponsored training is connected to their career development, 38% said that a little of it is, and 12% said that all of it is. No scientists said that none of the NAC-sponsored training is connected to their career development.

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QUESTION 5
SCIENTISTS

(FREQUENCY OF RESPONSE)
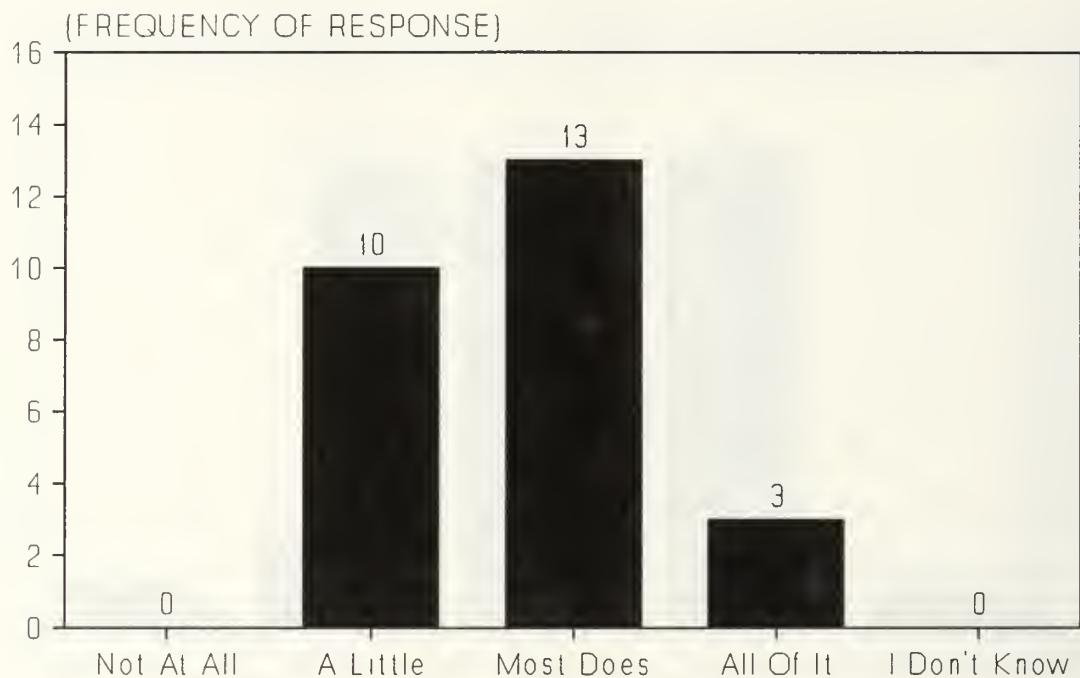
Figure 177

f. *Question 6: What type of training do you get the most value from?*

Figure 178 shows the frequency of all responses to Question 6. The training of greatest value is listed as training classes off-site (not college). This is followed very closely by On-The-Job training. The third, fourth, and fifth most valuable types of training are conferences/seminars, training classes on-site, and college

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courses. Six respondents listed correspondence courses as their most valuable type of training and three respondents did not know.

QUESTION 6
ALL RESPONSES

(FREQUENCY OF RESPONSE)
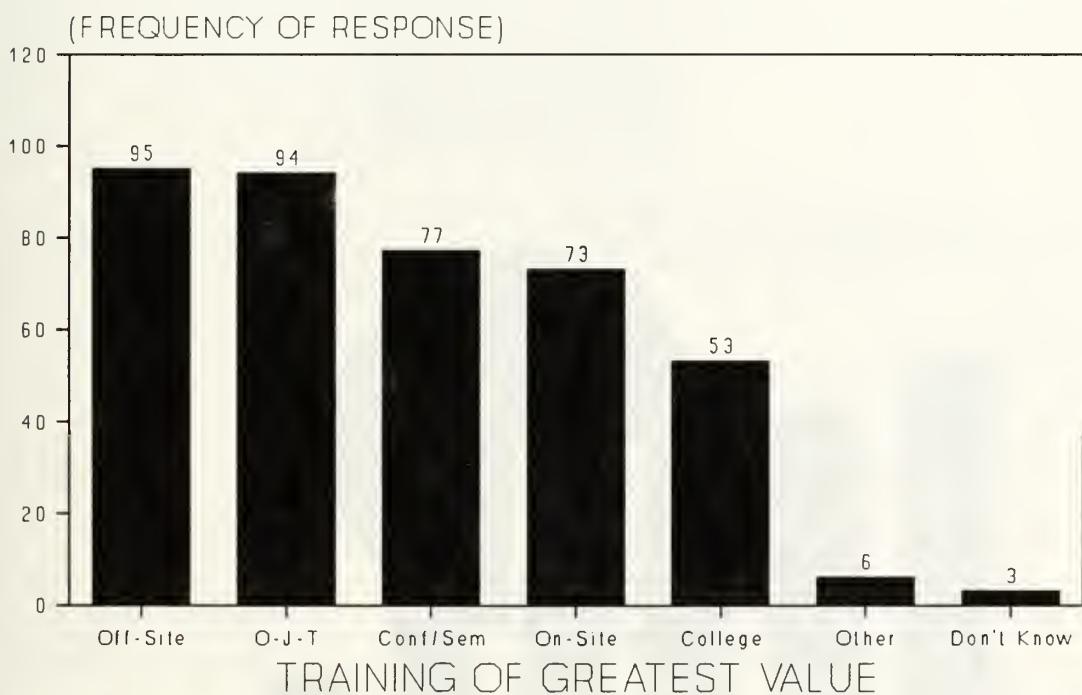
Figure 178

g. *Question 7: Identify the most preferred NAC-sponsored training courses.*

Figure 79 shows the frequency of all responses to Question 7. The most preferred NAC-sponsored training course

is listed as local colleges/universities. The next two most preferred courses are professional associations and private companies. These are followed by NAC-taught courses, contractors with the federal government, and NTU. Twelve respondents did not know the most preferred type of course and six others listed other.

QUESTION 7
ALL RESPONSES
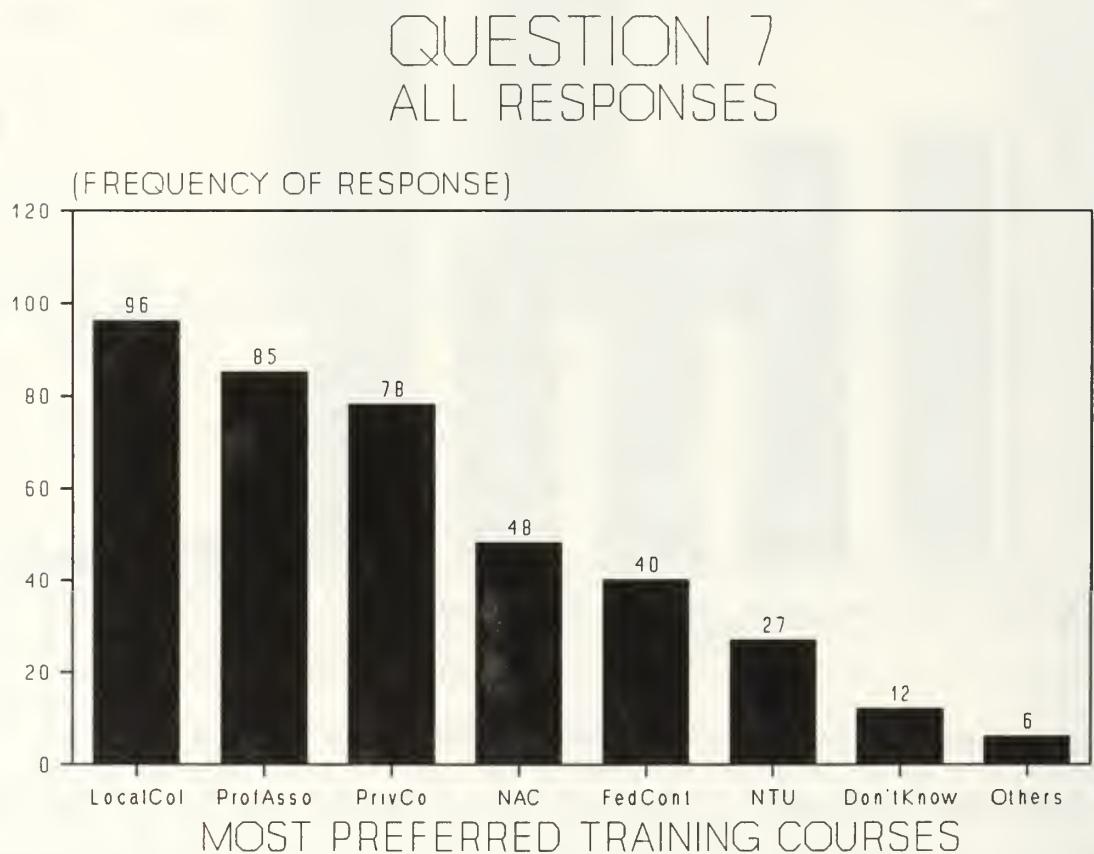
Figure 179

h. Question 8: Is training related to your performance appraisal?

Figure 180 shows the frequency/percentage of no/yes reponses to Question 8 by the total sample population. Seventy-four percent of those surveyed said that training is not related to their performance appraisal.

QUESTION 8
ALL RESPONSES

No 105
74%

Yes 37
26%
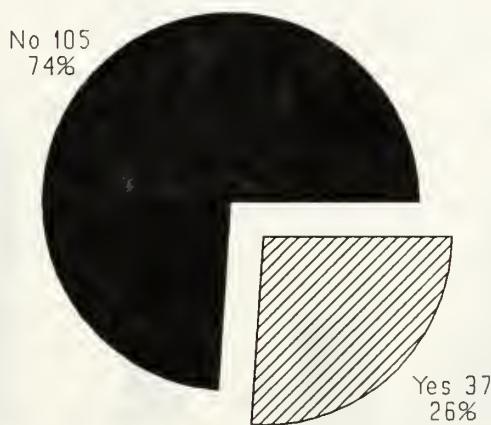
Figure 180

Figure 181 shows the frequency of no/yes responses to Question 8 by department and job category. The comparison of no/yes responses by department indicates that Department 900 has the highest percentage of its sample population (86%) who believe that training is not related to their performance

appraisal. In contrast, Department 700 has 40% of its sample population who believe that training is related to their performance appraisal.

The no/yes responses by job category indicates that scientists have a higher percentage of its sample population (81%) who believe that training is not related to their performance appraisal than does the engineer community (72%).

QUESTION 8
BY DEPARTMENT/JOB CATEGORY
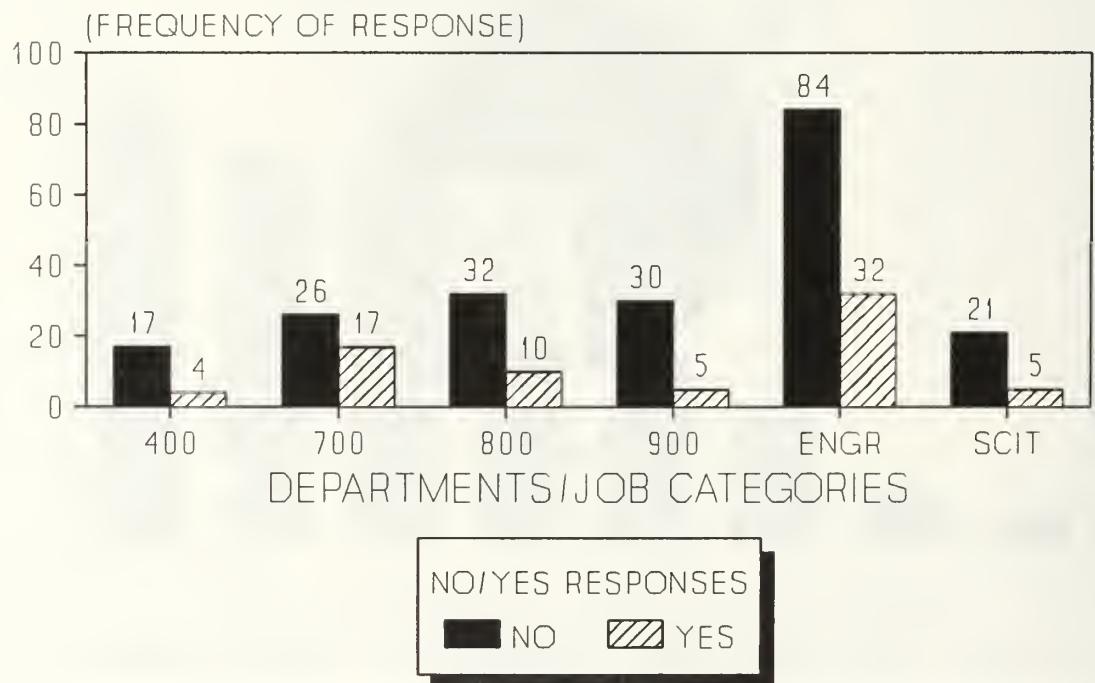
Figure 181

Figure 182 shows the frequency of no/yes responses to Question 8 by paygrade category. The comparison of no/yes responses indicates that the GS-11 and GS-12 paygrade groups have the highest percentage of its sample population who believe training is not related to their performance appraisal (74% and 85% respectively). In contrast, 43% of the managers (who are responsible for performance appraisals) believe that training is related to performance appraisals.

QUESTION 8
BY PAYGRADE CATEGORY

(FREQUENCY OF RESPONSE)
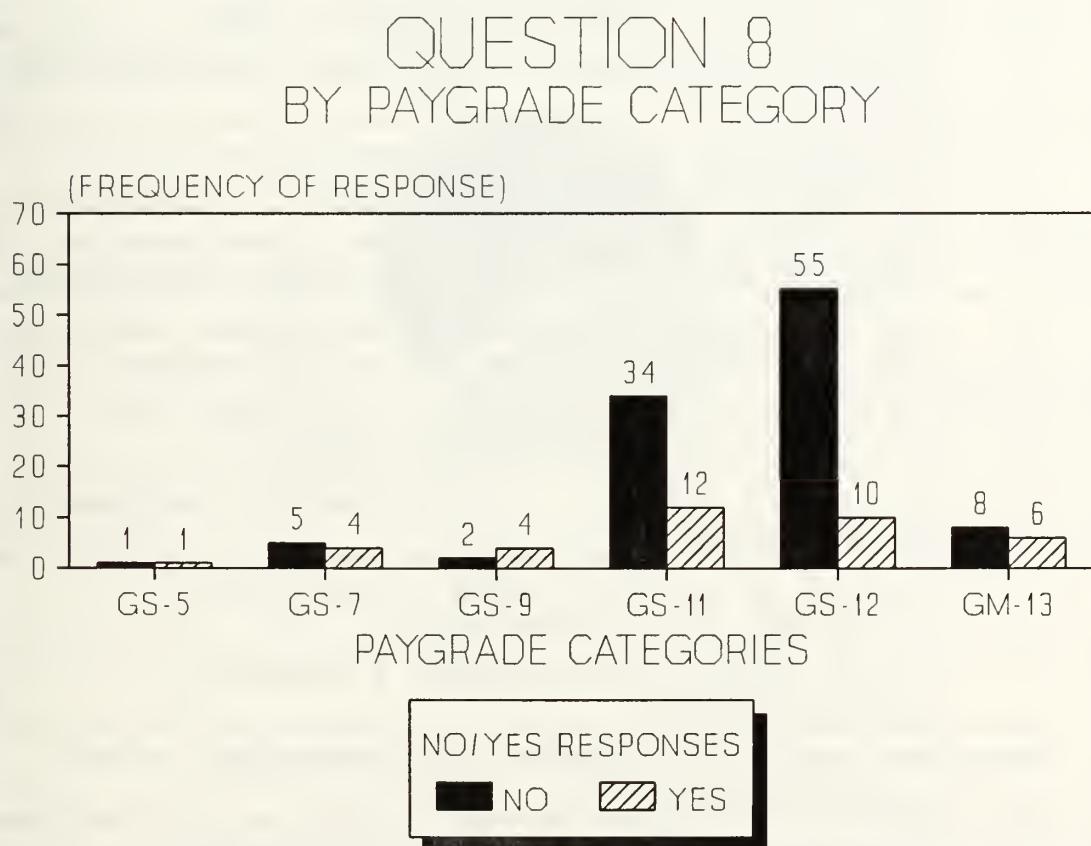
Figure 182

Table 16 provides a list of comments by the total sample population on how training is related to their performance appraisals.

TABLE 16.--COMMENTS ON TRAINING AND PERFORMANCE APPRAISALS

Totals	Comments by the Total Sample Population
7	When IDPs are reviewed during perf. appraisals
4	Training allows you to perform job better.
4	When training is required to perform job duties
3	It enables me to meet requirements of job & be more efficient.
2	By how much I learn and apply to job.
2	Demonstrates desire to seek more knowledge/keep up to date.
2	Training is needed to perform better & to increase future responsibilities & abilities.
2	An indication that efforts have been made to improve skills/correct identifiable weaknesses.
2	An IDP with no trng/development goals indicates little promotion potential or job interest.
1	Training is related to all perf. appraisal - it is listed next to your PARS report.
1	A part of the job is to enhance the performance of employees.
1	A lack of training shows a person isn't motivated and is complacent.
1	Shows personal advancement & promotion qualifications.
1	By improving yourself it should help organization.
1	Through career development & training.

i. Question 9: If no, should training be related to your performance appraisal?

Figure 183 shows the frequency/percentage of no/yes responses to Question 9 by the total sample population. Thirty-eight percent of those who responded no to Question 8 said that training should be related to their performance appraisal.

QUESTION 9
ALL RESPONSES

No 69
62%

Yes 42
38%

Figure 183

Figure 184 shows the frequency of no/yes responses to Question 9 by department and job category. The comparison of no/yes responses by department indicates that Department 700 has the highest percentage of its sample population who responded no to Question 8 who believe training should be

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related to their performance appraisal at 45%. Department 900 has the lowest percentage of its sample population who responded no to Question 8 who believe training should be related to their performance appraisal at 31%.

The no/yes responses by job category shows that a higher percentage of engineers who responded no to Question 8 believe that training should be related to their performance appraisal than do scientists (40% as compared to 29%).

QUESTION 9
BY DEPARTMENT/JOB CATEGORY
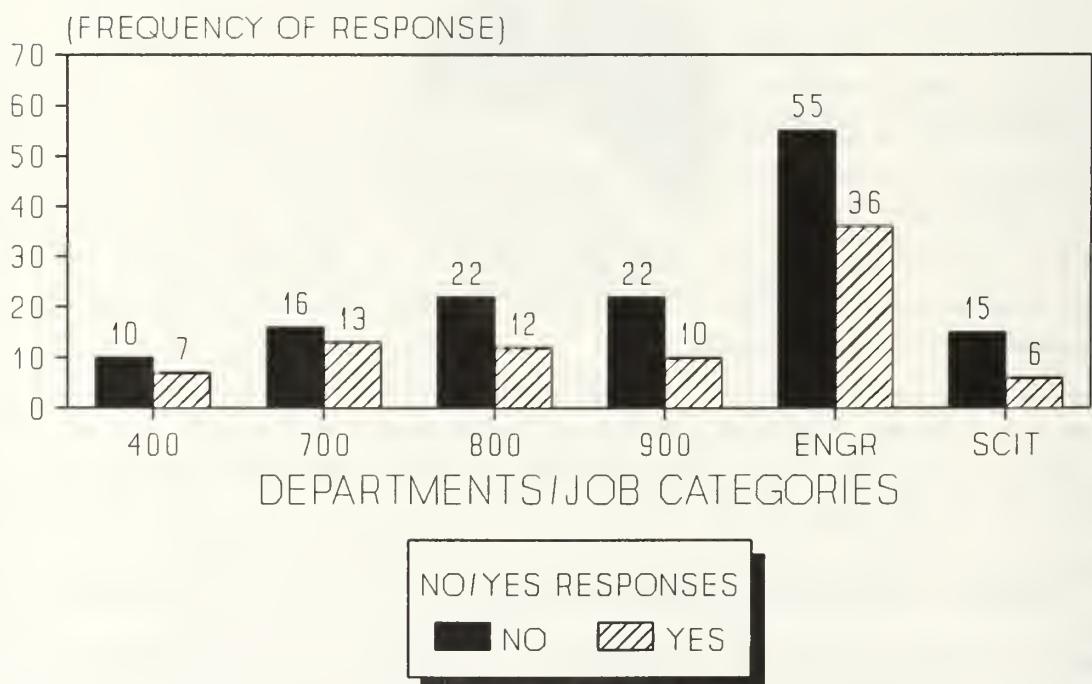
Figure 184

Figure 185 shows the frequency of no/yes responses to Question 9 by paygrade category. The comparison of no/yes responses indicates that the highest two paygrades (GS-12 and GM-13) have the lowest percentage of those who believe training should be related to their performance appraisal (30% and 33% respectively).

QUESTION 9
BY PAYGRADE CATEGORY

(FREQUENCY OF RESPONSE)
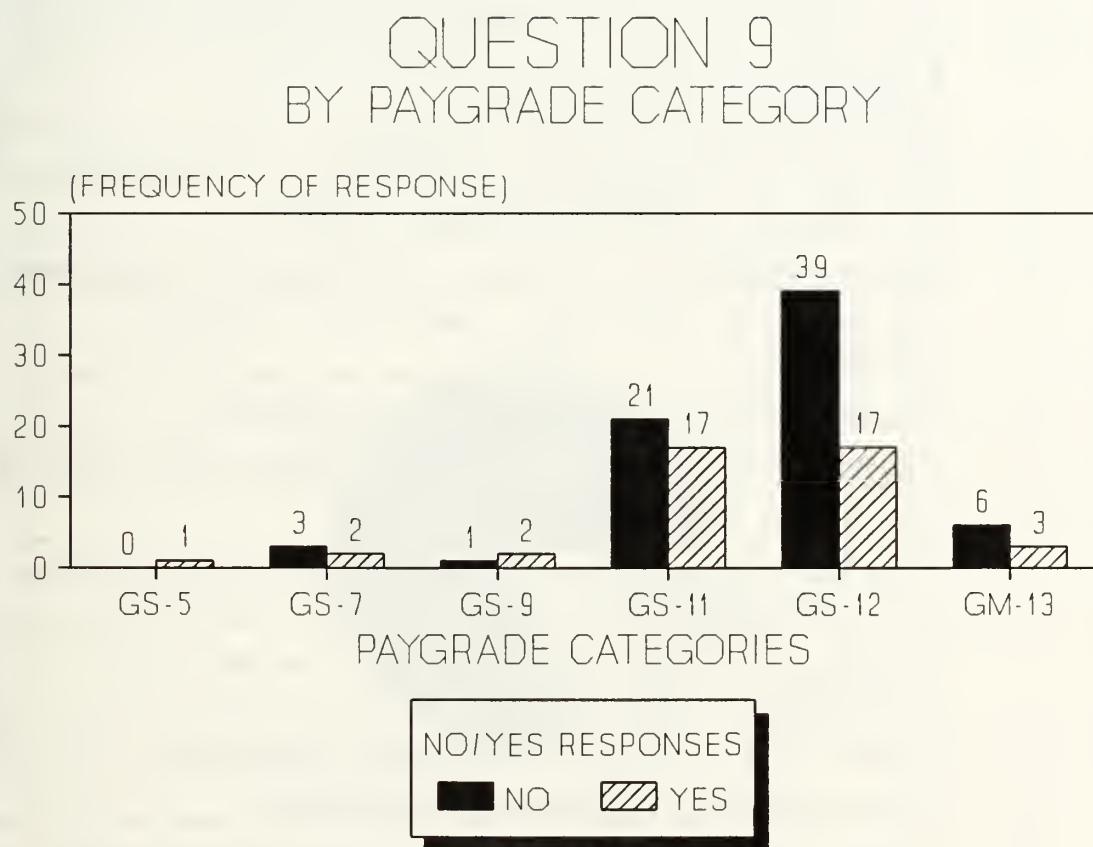
Figure 185

Table 17 provides a list of comments on how training should be related to their performance appraisal from the total sample population who responded "No" to Question 8 and "Yes" to Question 9.

TABLE 17.--TRAINING'S RELATIONSHIP TO PERFORMANCE APPRAISAL

Totals	Comments by the Total Sample Population
7	To improve capabilities and job performance.
5	If performance is related to training received.
3	Specific training is required for job performance improvement.
3	If training is listed on IDP and job related.
2	To keep up with expertise in field.
2	If attitude is to learn, we should be commended
1	Training & experience should be looked at together.
1	Should get benefit for working harder.
1	Should relate to next year's objectives & goals
1	To force management to do IDPs.
1	Training determines the interest & willingness to perform better.
1	Performance in training should be part of appraisal.
1	Used as a progressive movement barometer.
1	As a qualification for advancement.
1	More challenging jobs go to trained personnel.
1	What you know or try to learn should rate more than who you know!
1	Goals should be established & you should be measured against them.
1	If effort is made to apply training received.

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5.   Course Content Evaluation

   a. *Part A - Total Quality Management (TQM) Courses*

      (1) Question 1:   Have you had any of the TQM courses?

         Figure 186 shows the percentage of the total sample population who has received TQM training courses. Twenty percent of the total sample population has received some type of TQM course.

QUESTION 1
ALL RESPONSES

No 115
80%

Yes 29
20%

Figure 186

255
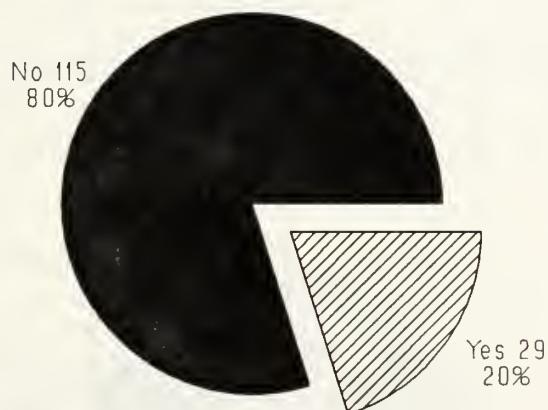
(2) Question 2:   Please list the TQM courses you have attended in the past two years and rate the quality of each according to the following scale:

POOR - Needs lots of work

FAIR - Okay, but only okay

GOOD - Still some room for improvement

Excellent - No sweat!

Figure 187 shows the rating percentages provided by the total sample population for the TQM courses attended.   Sixty-one percent of those who had attended TQM courses rated them good or excellent.   Only 10% rated the TQM courses poor.

QUESTION 2
ALL RESPONSES

Fair 12
29%

Poor 4
10%

Excel 9
21%

Good 17
40%
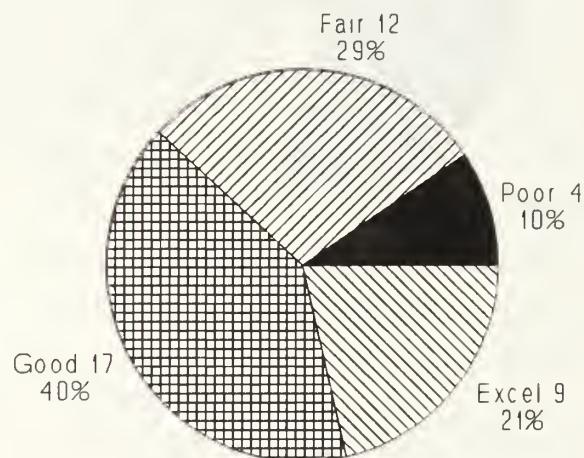
Figure 187

Table 18 provides the list of respondent TQM courses with their assigned rating.

TABLE 18.--LIST OF TQM COURSES ATTENDED AND QUALITY RATINGS

TQM COURSE	POOR	FAIR	GOOD	EXCEL
Statistical Process Control	1	5	4	1
Deming (Live)	0	0	3	2
High Velocity Manufacturing	0	1	3	0
TQM Overview	0	3	0	0
Taguchi Methods	0	●	●	0
TQM Seminar	0	0	●	1
Don't Remember Titles	1	1	5	0
Intro to Deming	1	0	0	0
Deming Update	0	0	1	0
Dr. Tom	0	0	0	1
CIC Reorganization	1	1	1	0
Quality Functional Deployment	1	0	1	0
Handshake	0	0	1	0
Sonobouy TQM	0	1	0	0
Quality Control Principles	0	5	0	1
Reliability Engineering	0	5	0	1
Teambuilding	0	0	●	0
PMC/PMA IUPUI	0	0	0	1
Gold Ratt Seminar	1	1	5	0
All The Others	0	0	0	1

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(3) Question 3:   What benefits do these courses offer you and for NAC?

Table 19 provides comments about the benefits of TQM from those scientists and engineers responding to Question 3.

TABLE 19.--COMMENTS CONCERNING THE BENEFITS OF TQM

Totals	Comments about the Benefits of TQM
15	New ways of thinking, new ways of doing business, new ways to improve.
5	Learn about TQM (e.g., to relate to subcontractor already involved).
3	TQM helps to ensure survival.
3	None. I already knew the concepts.
2	TQM conflicts with NAC practices.

(4) Question 4:   How consistent is TQM with management practice here?   (To the extent possible in a government system).

Table 20 provides comments about the consistency of TQM with management practice at NAC from scientists and engineers who responded to Question 4.

TABLE 20.--COMMENTS CONCERNING TQM AND MANAGEMENT PRACTICE

Totals	Comments Concerning the Consistency of TQM and Management Practice at NAC
8	It's not, e.g., lip service.
8	Implementation is variable, e.g., varies with Branch Managers.
7	There has been progress made, but there is still a way to go; learning still going on.
4	Limited, e.g., partial use (ignoring data or commitment lacking).
4	Miscellaneous comments.

b. Part B - NTU Courses

(1) Question 1: Have you taken any NTU courses?

Figure 188 shows the percentage of the total sample population who has taken any NTU courses? Approximately one-third of those surveyed said that they had taken NTU courses.

No 94
66%

Yes 49
34%
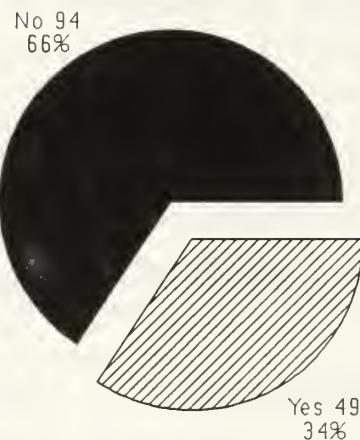
Figure 188

(2) *Question 2: About how many courses have you taken?*

Figure 189 shows the percentage and numbers of NTU courses taken by the total sample population. The majority of scientists and engineers have taken only one or two NTU courses.
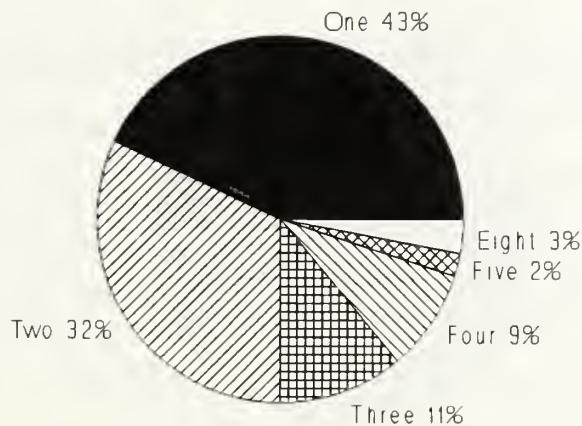
Figure 189

(3) *Question 3:* *Evaluate the quality of the NTU* *courses you have taken by circling the letter beside the* *appropriate response.*

Figure 190 shows the quality percentages of the NTU courses the respondents have taken. Seventy percent of those surveyed said that the courses were fair or good. Only 14% said the courses were poor. Eight percent said the courses ranged from poor to excellent, while 8% said the courses were excellent.

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Fair 33%
Poor 14%
Other 2%
Ranges 6%
Excel 8%
Good 37%
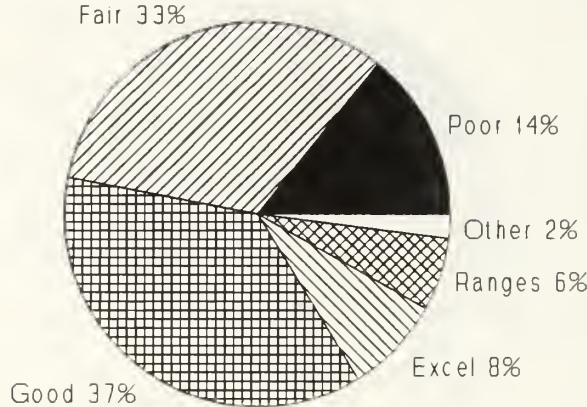
Figure 190

(4) Question 4: What NTU courses have you had that stand out in your mind as especially good and why?

There were no trends identified in the responses of those who have taken NTU courses. However, of those sampled, only 37% could list any NTU courses which they considered good (Appendix B comments). A complete listing of their comments is included in Appendix B.

(5) Question 5: What benefits did you see as a direct result of the training?

Table 21 provides comments from scientists and engineers concerning benefits they see as a direct result of

NTU training. The majority of comments concerning NTU training were positive. There were only two respondents who felt NTU training was a waste of time.

TABLE 21.--COMMENTS CONCERNING BENEFITS OF NTU COURSES

Totals	Comments Concerning the Benefits of NTU Courses
8	NTU training provides knowledge about administration, management skills, organization, and the environment.
6	NTU training improves/provides new technical knowledge (job relevance not specified).
5	It increases technical knowledge in my job area.
3	NTU training provides knowledge outside of my area of expertise; can be used in future.
2	NTU training improves the quality of work.
2	NTU training is a waste of time.
1	Miscellaneous.

(6) Question 6: What NTU courses have you had that stand out in your mind as especially bad and why?

There were no trends identified in the responses to Question 6. However, 41% of those surveyed were able to list at least one NTU course which they considered to be a bad course (Appendix B comments). A complete list of comments on Question 6 is included in Appendix B.

c. Part C - Time Management Course

(1) Question 1:   Have you ever taken any Time Management courses?

Figure 191 shows the percentage of the total sample population who have taken Time Management courses. Approximately a third of the sample population have taken Time Management courses.

QUESTION 1
ALL RESPONSES

No 97
66%

Yes 49
34%
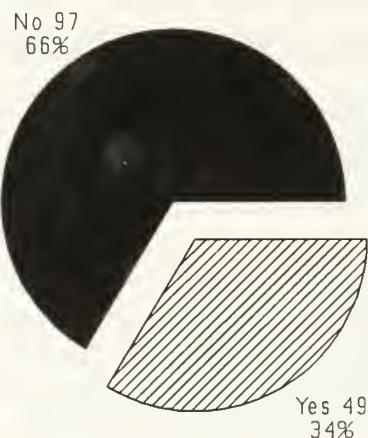
Figure 191

(2) *Question 2: Evaluate the quality of the Time Management course you took by circling the letter beside the appropriate response.*

Figure 192 shows the quality rating percentages of the Time Management courses taken by the total sample population. Seventy percent of those surveyed said that the courses were good or excellent. Only 2% said the courses were poor.

QUESTION 2
N = 49

Fair
26%

Poor
4%

Good
50%

Excel
20%
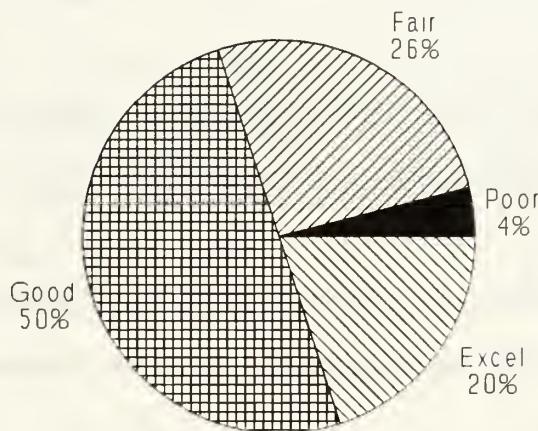
Figure 192

(3) Question 3: What benefits have these courses had for you and for NAC?

Table 23 provides a list of comments from scientists and engineers concerning the benefits Time Management courses have had for them and for NAC.

TABLE 23.--COMMENTS CONCERNING THE BENEFITS OF TIME MANAGEMENT COURSES

Totals	Comments of Scientists and Engineers
23	They have increased my efficiency at work.
9	I have learned more about time management.
8	When applied, I operate more efficiently.
3	I did not benefit from the time management courses.

(4) Question 4: Do you have any additional comments you would like to share concerning the Time Management course?

Table 24 provides a list of additional comments concerning the time management courses taken by the total sample population.

TABLE 24.--ADDITIONAL COMMENTS ABOUT TIME MANAGEMENT COURSES

Totals	Comments by Scientists and Engineers
6	Everyone should take it.
5	Curriculum needs to be changed, e.g., delegation ideas not appropriate for lower levels.
4	Miscellaneous.
3	Have difficulties in implementing the ideas.
2	Refresher training would be good.

d. Part D - Technical Courses

(1) Question 1: Have you taken any other technical courses other than thru NTU, to include any college courses?

Figure 193 shows the percentage of the total sample population who has taken other technical courses other than thru NTU. Almost two-thirds of those surveyed said that they had taken other technical courses, to include college courses, other than thru NTU.

QUESTION 1
ALL RESPONSES

No 50
34%

Yes 95
66%
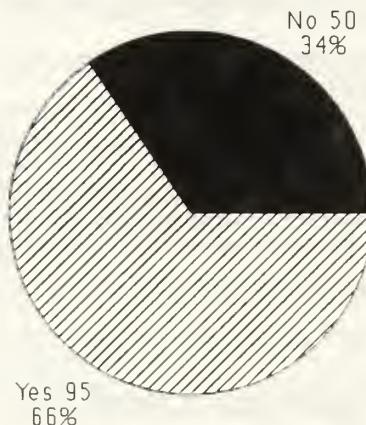
Figure 193

(2) *What technical courses have you had that stand out in your mind as especially good and why?*

Although there were no general trends identified in the responses to this question, 84% of the sample group was able to list at least one technical course which they considered to be good (Appendix B comments). A complete listing of comments on Question 2 is included in Appendix B.

(3) *Question 3:   What benefits did you see as a direct result of the training?*

Table 25 provides a list of comments from those responding to Question 3 concerning the benefits they see as a direct result of technical course training.

TABLE 25.--COMMENTS CONCERNING BENEFITS OF TECHNICAL TRAINING

Totals	Comments by Scientists and Engineers
40	Technical courses provide improved job performance.
29	Technical courses have increased my understanding, knowledge, and awareness.
4	Miscellaneous.
3	I do not use what I learned in the technical courses on the job, but may later.

(4) Question 4:   What technical courses have you had that stand out in your mind as especially bad and why?

Although there were no general trends identified in the responses to Question 4, only 34% of those surveyed could list a course which they considered to be bad (Appendix B comments).   A complete list of comments from respondents on Question 4 is included in Appendix B.

e. Part E - Management Training Courses

(1) Question 1: Have you ever taken any Management Training courses other than TQM?

Figure 194 shows the percentage of respondents who have taken management training courses other than TQM.

Forty-eight percent of those surveyed said that they had taken some management training courses other than TQM.

QUESTION 1
ALL RESPONSES

No 76
52%

Yes 70
48%

Figure 194

(2) Question 2: What management courses have you had that stand out in your mind as especially good and why?

The general trend in the responses to Question 2 is that program/project management courses are especially good because they were practical and gave an analytical approach towards managing a project. Eighty-six percent of those surveyed listed at least one management course which they considered to be good (Appendix B comments). Seventeen

out of sixty respondents listed a program/project management course as being especially good.

(3) *Question 3:* *What benefits did you see as a direct result of the training?*

The general trend noted here as in other benefit of training questions is that the training helps them to perform their jobs better. A complete list of comments on Question 3 is included in Appendix B.

(4) *Question 4:* *What management courses have you had that stand out in your mind as especially bad and why?*

In responding to this question, no two of the eleven courses mentioned as bad were listed twice. Although no trends were noted in why these classes were bad, only 14% of the sample group could list a management course they considered to be bad (Appendix B comments). A complete list of comments concerning Question 4 is included in Appendix B.

f. *Part F - Other Training Courses Not Previously Covered*

(1) *Question 1:* *Have you taken any "other" training courses not previously mentioned?*

Figure 195 shows the percentage of respondents who have taken other training courses not previously

mentioned. Forty-seven percent of those surveyed said that they had taken other training courses not previously mentioned.

QUESTION 1
ALL RESPONSES

No 73
53%

Yes 65
47%

Figure 195

(2) *Question 2: What other courses have you had that stand out in your mind as especially good and why?*

Although there were no general trends noted in the responses to Question 2, 86% of those surveyed listed at least one course they had had which they considered to be good (Appendix B comments). A complete list of comments concerning Question 2 is included in Appendix B.

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(3) *Question 3: What benefits did you see as a direct result of the training?*

The general trend noted in the responses to this question is that the greatest benefit is being able to apply the knowledge gained to their job/increase job performance. A complete list of comments concerning Question 3 is included in Appendix B.

(4) *Question 4: What other courses have you had that stand out in your mind as especially bad and why?*

Although there were no general trends identified in the responses to Question 4, only 23% of those surveyed could list a course which they considered to be bad (Appendix B comments). A complete list of comments concerning Question 4 is included in Appendix B.

g. *Part G - Overall Evaluation of NAC's Training Program*

(1) *Question 1: Overall, how would you rate NAC's training program?*

Figure 196 shows the quality rating percentages of the total sample population for Question 1. Fifty-four percent of those surveyed rated NAC's training program average, 31% rated the training program above average or

excellent, and 14% rated NAC's training program below average or unsatisfactory.

QUESTION 1
ALL RESPONSES

Average 78
54%

Below Avg 17
12%

Unsat 3
2%

Above Avg 43
30%
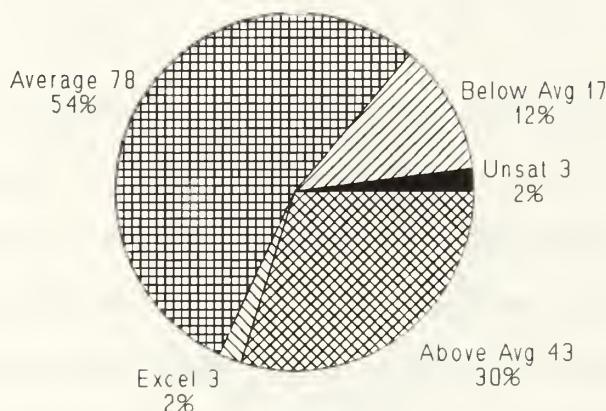
Excel 3
2%

Figure 196

Figure 197 shows the quality rating percentages by Department 400. Fifty percent of those surveyed said that the NAC training program was average, 32% said it was above average, 13% said it was below average, and 5% said it was excellent. No one in Department 400 said the training program was unsatisfactory.

Average 50%

Below Avg 13%

Excell 5%

Above Avg 32%
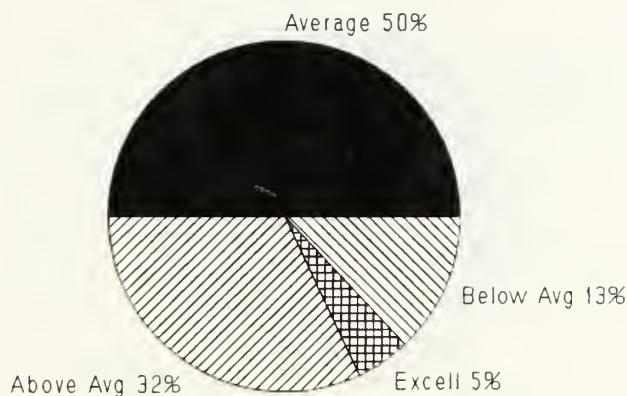
Figure 197

Figure 198 shows the quality rating percentages by Department 700. Fifty-six percent of those surveyed said that the training program was average, 31% said it was above average, 7% said it was below average, 4% said it was excellent and 2% said it was unsatisfactory.
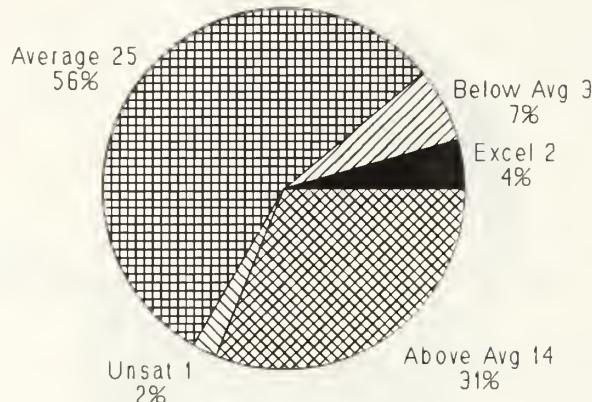
Figure 198

Figure 199 shows the quality rating percentages by Department 800. Fifty-two percent of those surveyed said that the training program was average, 34% said it was above average, 12% said it was below average, and 2% said it was unsatisfactory. No one in Department 700 said that the training program was excellent.

Average 52%

Unsat 2%

Below Avg 12%

Above Avg 34%

Figure 199

Figure 200 shows the quality rating percentages by Department 900. Sixty percent of those surveyed said that the training program was average, 20% said it was above average, and 20% said the program was below average or unsatisfactory. No one in Department 900 said that the training program was excellent.

QUESTION 1
DEPARTMENT 900
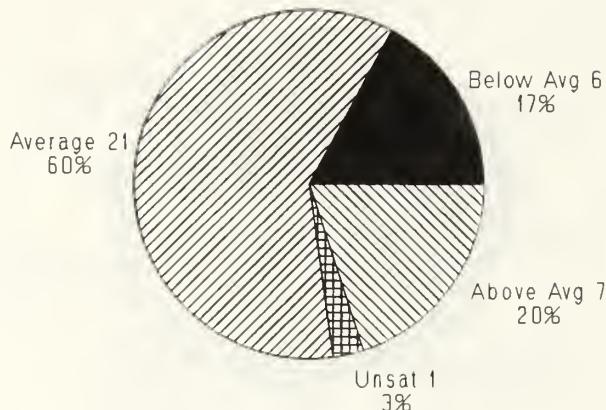
Figure 200

Figure 201 shows the quality rating percentages by the engineer community. Fifty percent of the engineers surveyed said the training program was average, 31% said it was above average, 14% said it was below average, 3% said it was excellent, and 2% said it was unsatisfactory.

QUESTION 1
ENGINEERS
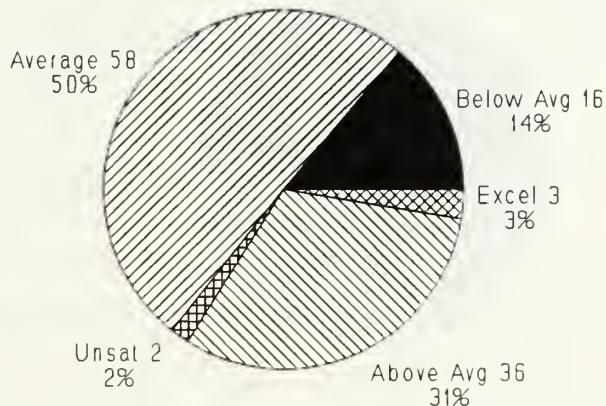
Figure 201

Figure 202 shows the quality rating percentages by the scientist community. Seventy-three percent of the scientists surveyed said that the training program was average, 19% said it was above average, 4% said it was below average, and 4% said it was unsatisfactory. No one in the scientist community surveyed said that the training program was excellent.

QUESTION 1
SCIENTISTS

Average 19
73%

Below Avg 1
4%

Above Avg 5
19%

Unsat 1
4%
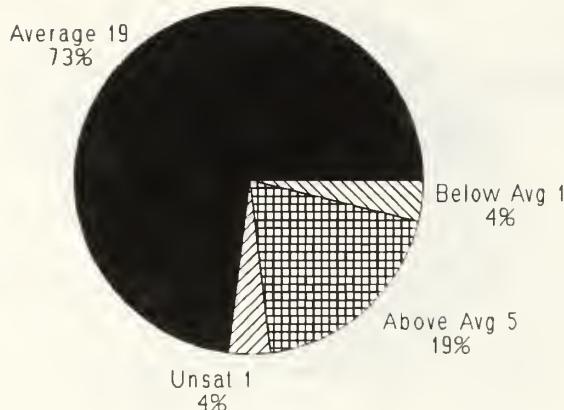
Figure 202

(2) Question 2: What would be your "wish list" for courses offered through NAC?

Table 26 provides a list of comments from respondents to Question 2 on their "wish list" for courses offered through NAC. Sixty-five percent of the total sample population listed at list one course they would like offered through NAC (Appendix B comments).

TABLE 26.--COMMENTS CONCERNING RESPONDENT'S WISH LIST FOR
COURSES OFFERED THROUGH NAC

Totals	Comments by Scientists and Engineers
52	Technical related courses.
13	Management training.
13	Miscellaneous comments.
11	Government or NAC systems, issues, policy courses.
9	Time management/project management/contracting courses.
5	Communications courses.
5	Management training for non-managers.
2	Statistical Process Control (SPC) courses.
1	Total Quality Management (TQM) courses.

(3) Question 3:   What recommendations would you make to improve the way training is done at NAC?

Table 27 provides a list of recommendations by scientists and engineers responding to Question 3. Seventy-five percent of the total sample population provided recommendations on ways to improve the way training is done at NAC (Appendix B comments).

TABLE 27.--COMMENTS CONCERNING RECOMMENDATIONS TO IMPROVE THE
WAY TRAINING IS DONE AT NAC

Totals	Comments by Scientists and Engineers
36	More information to employees about training opportunities/standardize & give costs, e.g., listing on OA (no screening).
16	Restructure process/notify people who are not selected/provide better organization/go by IDPs, etc.
11	Provide career path information/counseling, e.g., less haphazard for new engineers.
10	Miscellaneous comments.
9	Provide more job applicable courses; eliminate others, e.g., more NTU, less 1/2 day seminars.
5	Make courses more available/fair to employees.
1	Provide more money for training.
4	Give individuals more control over the courses we take.
4	Provide courses about NAC organization and operations.
3	Provide more time off in association with training.
9	Hire different/more expert staff responsible for training.
3	Provide more course offerings for popular courses so that you can get it when you need it.
3	Approve travel to conference, etc., when needed. Trust employees to know what is best.
3	Provide more courses off-station, vice at NAC.
2	The rhetoric used to promote training at NAC does not match the money commitment to it.
2	No improvements are needed.
1	Budget the money, then leave it alone.
4	Provide more courses offered by NAC scientists and engineers.
1	Improve on-site facilities.

C. PRESENTATION OF FINDINGS

1. Administration

In assessing how efficiently and effectively the training program is administered, areas which were investigated included familiarity with the program and its application/selection process, responsiveness of management to suggestions for course improvement, and whether the training program has been properly planned and organized.

Based upon the responses of the sample group, there appears to be a need for better communication of the training program to NAC employees. Although there were many favorable comments about the administration of the training program, to include the belief by 62% of the sample group who were not neutral toward the statement that NAC is responsive to suggestions for improving the quality of the courses given, there is a general trend which occurs throughout most of the questions on administration that there is a substantial need for more information about the training program.

The analysis of the opinions of the total sample population indicates that 46% of the sample group were not familiar to some extent with the full range of training courses offered by NAC (Figure 27). Reinforcing the need for better communication of NAC's training program are Table 3, which lists the need for more information about available training as the most common comment about how to improve the

IDP process; Table 4, which lists knowledge about available classes, or information on available classes not available or not forwarded, behind monetary/budgetary constraints as the major reason why scientists and engineers are not able to get the career development training they need; and Table 27, which lists more information to employees about training opportunities as the most common comment concerning recommendations of how to improve the way training is done at NAC. In addition, 75% of those who were not neutral in Question 1-G which asked whether they would be more interested in NAC-sponsored training if they knew more about it (Figure 51).

The Black and Asian ethnic groups, Departments 400 and 800, and the managers (GM-13) surveyed were inclined to be the most familiar with NAC's training program (Figures 28 & 29). The Hispanic ethnic group, scientists, Departments 700 and 900, and the lower paygrade groups were inclined to be the least familiar with NAC's training program (Figures 28 & 29).

Familiarity with procedures to apply for or obtain information about NAC-sponsored training was less of a concern to the total sample population than familiarity with the training program. Approximately four out of every five respondents knew how to apply for or obtain information about NAC's training program (Figure 31). However, the 22% who were not sure how to apply for or obtain information about NAC's

training program still represents a rather significant proportion of the population.

As was the case with familiarity with the training program, the Hispanic ethnic group, scientists, Departments 700 and 900, and the lower paygrade groups were less familiar with how to apply for or obtain information about NAC-sponsored training than other demographic groups.

With respect to how responsive NAC is to suggestions for improving the quality of training courses, about half of the total sample population had no opinion (were neutral). Of those who expressed an opinion one way or the other, approximately two out of every three said that NAC was responsive to suggestions for improving the quality of the courses given (Figure 35).

Department 400, the Asian ethnic group and managers were most inclined to agree that NAC is responsive to suggestions for improving the quality of the courses given (Figures 36 & 37). These groups were also most familiar with the full range of courses given and with application procedures as stated above. The Hispanic ethnic group was inclined to some extent to believe that NAC is not responsive to suggestions for improvement. The Hispanic ethnic group was also one of the groups least familiar with NAC's training program or application process.

Of the three statements describing a purpose of NAC-sponsored training, only the purpose to contribute to the

career development of NAC employees received an overwhelming positive response. Ninety-three percent of those surveyed who were not neutral agreed that contributing to career development is a purpose of NAC-sponsored training (Figure 47). Fifty-eight percent of those surveyed who were not neutral toward the statement believes correcting job performance deficiencies is a purpose of NAC-sponsored training (Figure 43). Only 11% of those who were not neutral believes that good performance is rewarded by NAC-sponsored training (Figure 39).

While an overwhelming majority believes that a purpose of NAC-sponsored training is to contribute to career development, only 53% are clear on what training they need for their career development (Figure 64). Departments 400 and 900 are the only departments who do not have a majority who are clear on what career development training is needed (Figure 65).

Of the total sample population who is clear on what career development training they need, only approximately half say they are able to get the training they need (Figure 67). Of those who say they cannot get the career development training they need, 34% said that monetary/budget constraints is the reason given for not getting the development training they needed (Table 4). Another 28% said they could not get career development training because they do not know about the classes available/required, or information is not available/forwarded, or they believe the courses are not

offered for their career development (Table 4). Nineteen percent blame the selection process in one form or another for their not being able to get career development training (Table 4). Almost one out of every ten said that there was no career path defined and therefore did not know what development training to get (Table 4).

The use of Individual Development Plans (IDPs) is used within each department to some extent to allocate training and document needs. There appears to be little uniformity or consistency in the manner in which IDPs are used by the departments. Eighty percent of the total sample population surveyed said that they have an IDP (Figure 55). Departments 700 and 900 emphasize the use of IDPs less than any other department (Figure 56). Of those who have IDPs, 53% of those surveyed said that training has to be listed on the IDP for it to be approved (Figure 58). The majority of Department 700 scientists and engineers, however, said that training did not have to be listed on the IDP for it to be approved (Figure 59).

With respect to input into their IDP, 54% said that there is someone else who has input into their IDP (Figure 61). The majority of Department 800 scientists and engineers, however, said that no one else provides input to their IDPs (Figure 62). In Department 900, 77% of the input comes from their Branch Manager, whereas in Department 700, 71% of the input comes from their supervisor (Table 2).

The completion rate for NAC-sponsored training among the total sample population is 88% (Figure 70). In addition, 6% of the sample group has earned a master's degree through a NAC-sponsored advanced degree program (Figure 71). While only 6% said they had earned a master's degree already through NAC, another 32% surveyed said that they planned to earn a master's degree, and another 4% said they planned to earn a Ph.D. (Figure 72). All total, 64% of those surveyed said that they plan to take graduate-level courses in the future (Figure 72).

Of those surveyed who do not plan to pursue a degree, time needed to devote to earn an advance degree was the major reason for not pursuing a degree (Table 5). A considerable number said that there was no benefit/reward at NAC in earning another degree (Table 5). Similar responses were given by those surveyed who said that they have no plans or goals for graduate-level education at all (Table 8). Of those who have never applied for any NAC-sponsored training, the most common reason given for not applying was that there is no reward/benefit at NAC for taking courses (Figure 73). Other major reasons given are the time it takes them away from their family and job, and personal motivation or college "burn-out" (Figure 73).

In summary, the major trends which were identified in the responses of the sample group with respect to how effectively or efficiently the training program is administered are:

- that improvements are need in communicating the training program to all employees, especially in the following areas:

  - the purpose(s) of NAC's training program

  - the training opportunities which are available, at what time, location, etc.

  - the selection/application/notification process

  - what is expected of participants in return

  - the benefits/rewards participants can expect from their participation

- that IDPs are not used uniformly or consistently between/within departments, especially in the following areas:

  - who is required to have an IDP

  - who provides input into the IDP

  - whether training must be on the IDP for it to be approved

- that career paths/tracks and the training to support career development are not well-defined.

- that engineers, managers, Blacks, Asians, and Departments 400 and 800 are generally more positive about the training program than other demographic groups.

- that Departments 400 and 800 emphasize the use of IDPs more than the other departments surveyed.

- that scientists, lower paygrade groups, Hispanics, and Departments 700 and 900 are generally more negative about the training program than other demographic groups.

- that Departments 700 and 900 emphasize the use of IDPs less than the other departments surveyed.

2. Organizational Climate/Support

In assessing the organizational climate and support for NAC's training program, many different areas were investigated. These included the attitudes of personnel from top management to departments and branch managers to line supervisors to employees undergoing training, the availability and access to training for employees, the obstacles to participating in training programs/courses, and the extent to which skills learned are allowed to be used on the job.

Based upon the responses of the sample group, there appears to be a good organizational climate for and support of the training program at the Naval Avionics Center. Eighty-three pecent of those who were not neutral toward the statement indicated that their supervisor encouraged attendance at NAC-sponsored training courses (Figure 103). The Black ethnic group was the only group whose average response indicated that their supervisors might not be fully supportive of NAC-sponsored training (Figure 104). The average response for Department 400 showed that they agreed to a lesser extent that their supervisors encouraged attendance as compared to the average responses of the other departments (Figure 104).

Eighty-nine percent of those surveyed who were not neutral indicated that their branch manager encourages attendance at NAC-sponsored training courses (Figure 107). The average response for Department 400 showed that they agreed to a

lesser extent that their branch managers encourages attendance as compared to the average responses of the other departments (Figure 108). The Black ethnic group was the only group whose average response indicates that their branch managers might not be fully supportive of NAC-sponsored training (Figure 108).

Eighty-six percent of those surveyed who were not neutral indicated that their department supports and encourages attendance at NAC-sponsored training courses (Figure 111). The average responses of the Black and Hispanic ethnic groups indicated that they were generally less inclined to agree that their department is supportive as compared to any other demographic group (Figure 112).

Eighty-six percent of those surveyed who were not neutral indicated that they believe NAC's "top leadership" supports and encourages attendance at NAC-sponsored training (Figure 115). The Hispanic ethnic group is the only group whose average response did not show some degree of agreement with the statement that NAC's "top leadership" supports and encourages attendance at NAC-sponsored training (Figure 116).

When asked to what extent NAC makes training courses available to them, more than half of the population who had previously applied for NAC-sponsored training said that they could get most or all of the training they require or want (Figure 74). Only 13% of the total sample population said

that there was none or minimal availability of training provided for them (Figure 74).

Department 400 had the highest percentage (22%) of its sample population who had previously applied for NAC-sponsored training who said that NAC provides only minimum training availability for them (Figure 75). Department 700 had the highest percentage (65%) of its sample population who had previously applied for NAC-sponsored training who could take most or all of the courses they require or want (Figure 76). Department 900 is the most competitive of the four departments surveyed as 53% of their sample population who had previously applied for NAC-sponsored training said that they must compete with others for the courses they receive (Figure 78).

The trend noted in the responses by job category is that twice as many scientists as engineers who had previously applied for NAC-sponsored training said that none or minimal training was made available to them (11% vs 22%) (Figures 79 & 80).

Fifty-five percent of those surveyed said that they had been denied approval for training (Figure 81). Department 700, scientists, and those in the GS-7 paygrade are the only demographic groups where a majority of its members said that they had never been denied approval (Figures 82 & 83).

When asked the reasons why they were denied approval, 55% said that there was no money in the budget or that the class was already full, eleven percent were never told why, and the

remaining reasons ranged from low on the priority list to location (Table 9).

When asked if anyone at NAC had greater access to training than anyone else, 51% said yes (Figure 84). Department 800 is the only department whose sample population has a majority of its members who do not believe any one group has greater access to training than any other (Figure 85). When respondents listed the groups or individuals they believed had greater access, 43% said that managers or management trainees had greater access (Table 10). Departments 800 & 900 were singled out by 10% of those responding as having greater access, as were engineers and those with greater access to available training information (Table 10). Only 3% said that a minority group had any greater access to training than others (Table 10).

There were many obstacles to getting training listed by respondents. The most common obstacle listed was that there was no money left in the budget (Figure 119). Time, lack of available training courses, workload, and not sufficiently job related were also listed as major obstacles (Figure 119).

When asked to compare training opportunities at NAC with those of private sector organizations, 53% of those who had a basis for comparison said that NAC provides somewhat or much more opportunities for training. Twenty-five percent believe that NAC provides somewhat or much less opportunities than private sector organizations (Figure 120). When asked the

same question about other public institutions/organizations, 43% said they believed NAC provided somewhat or much more opportunities for training. Only 14% believe that NAC provides somewhat or much less than other public institutions/organizations (Figure 121).

When asked to what extent NAC-sponsored training has a positive effect on morale within NAC, 66% of the total sample population said that it had a moderate or significant impact (Figure 122). Department 400 had the highest percentage (23%) of its sample population who said that NAC-sponsored training had a significant impact (Figure 123). Department 700 had the highest percentage (61%) of its sample population who said that NAC-sponsored training had a moderate impact (Figure 124). Department 900 had the highest percentage (50%) of its sample population who said that NAC-sponsored training had a little effect on morale (Figure 126). Department 800 had the highest percentage (9%) of its sample population who said that NAC-sponsored training had no effect at all on morale at NAC (Figure 125).

When asked to what extent they get the opportunity to put into practice the new skills they learn, 82% of those responding had favorable/positive comments regarding their use of technical skill training, and 69% of those responding had favorable/positive comments regarding their use of managerial skill training (Figure 129 & 130).

In summary, the major trends noted in the responses of the sample population with respect to the general climate and support at NAC for the training program are:

- that the general climate and support for the training program are good.

- that NAC-sponsored training has a positive effect on morale within NAC.

- that in general, Department 400, Blacks and Hispanics were more negative/less positive towards statements about their supervisors, managers, departments and top leadership encouraging and supporting NAC-sponsored training than any other demographic group.

- that in general, Department 400 and scientists are less satisfied with the availability of training than any other demographic group.

- that NAC-sponsored training has a more significant impact on morale within Department 400 than any other department.

- that scientists and engineers in Department 900 compete for training more and are denied approval for training more than any other department.

- that it is easier for scientists and engineers in Department 700 to get the training they require or want and get it approved than in any other department.

- that money in the budget is the greatest limiting factor in getting the support from the organization for the training that scientists and engineers need/want.

- that it is easier for managers or management trainees to get access to the training they need/want than any other group or individual.

- that NAC provides more training opportunities than private sector/other public institutions/organizations.

- that in general, scientists and engineers are allowed to put into practice the technical and managerial skills they learn through NAC-sponsored training.

3. Training Needs Analysis

To determine the training needs of scientists and engineers, the research focused on what the scientists and engineers believed their training needs are. To get perceptions about their training needs, the survey asked questions relating to whether training courses had improved their job capabilities, increased their job satisfaction/responsibilities, and enhanced their promotion or marketability potential. Other areas explored included the percentage of NAC-sponsored training applied to their current job, the degree to which training supports NAC's organizational strategies, and whether NAC-sponsored training is connected to their career development and performance appraisal.

Based upon the responses of the sample group, it appears that NAC-sponsored training is meeting most, but not all of the training needs of scientists and engineers. The analysis of the opinions of the total sample population indicates that 94% of the sample group who were not neutral toward the statement indicated that courses improved their technical capabilities to some extent (Figure 131). The Hispanic ethnic group and Department 700 were inclined to agree much more with the statement that the courses improved their technical capabilities than any other groups (Figure 132). Department 900, the Black and Asian ethnic groups, and the GS-9 paygrade group were inclined to agree with the statement that their

technical capabilities were improved, but to a lesser extent than any other demographic group (Figures 132 & 133).

Of those who were not neutral to the statement that courses improved their managerial capabilities, 74% agreed that to some extent their managerial capabilities were improved (Figure 135). The Hispanic ethnic group, the 21-25 year old group, and the GS-7 and GS-9 paygrade groups are the only groups who do not agree that courses have improved their managerial capabilities (Figure 136, 137 & 138).

One indication that NAC's training program is meeting their needs is the responses to the statement that the courses have increased their job satisfaction. Eighty-four percent of those who were not neutral said that their job satisfaction has increased as a result of the courses they have taken (Figure 139). Job satisfaction was increased the most in Departments 400 & 700, those with 16 or more years of experience at NAC, and the 46-50 year old group (Figures 140, 141 & 142). The responses of the 11-15 years of experience at NAC group indicates that this group does not agree that the courses have increased their job satisfaction (Figure 141).

In response to whether the courses have enhanced their promotion potential, a considerable percentage (42%) of those who were not neutral stated that they did not believe their promotion potential had been enhanced by the courses they took (Figure 143). The responses from Department 800 and the Hispanic ethnic group showed that these two sample populations

were most inclined to disagree with the statement than any other group that the courses have enhanced their promotion potential (Figure 144).

When asked their opinion about whether the courses have led to increased responsibilities at NAC, 68% of those who were not neutral toward the statement said that the courses have led to increased responsibilities (Figure 147). Department 800 is the only department who did not agree to some extent that the courses have led to increased responsibilities within their department (Figure 148). The GS-9 paygrade group and the 11-15 years of experience group are the only groups that were inclined to disagree to some extent with the statement that courses have led to increased responsibilities (Figure 149).

Eighty percent of those surveyed who were not neutral believe that the courses they have taken has increased their marketability with other agencies/firms (Figure 151). Scientists tended to believe that their marketability has been enhanced more so than engineers (Figure 152). The 51-55 year old group is the only group whose responses indicate that they disagree to some extent that their marketability has been enhanced (Figure 154).

Only 12% of those surveyed who were not neutral said that the training they have received makes it more likely they will leave for a job outside NAC (Figure 155). When asked about whether the training they have received improves their

credentials for a better job within NAC, two out of every three who were not neutral indicated that their credentials were improved for a better job at NAC (Figure 159). Department 400, scientists, and the Hispanic ethnic group were inclined to believe their credentials were more improved for a better job within NAC than any other demographic group (Figure 160). Department 800, the Asian ethnic group, the 11-15 years of experience at NAC group, and those who were between the ages of 46 and 55 did not agree that their credentials have been improved by NAC-sponsored training (Figures 160, 161, & 162).

When asked whether they have gotten new ideas/new approaches to doing their job, 92% of those surveyed who were not neutral toward the statement responded that they have gotten new ideas/new approaches to doing their job (Figure 163). The Hispanic ethnic group is inclined to agree that they have gotten new ideas/new approaches more so than any other demographic group (Figure 164).

The average responses for the total sample population indicates that 55% of the knowledge they are applying towards their current job came from on-the-job experience or training, 31% came from formal schooling prior to being hired at NAC, and 14% has come from NAC-sponsored formal training (Figure 167).

Sixty-seven percent of those surveyed said they needed more training in order to support the decreased cycle time

strategy (Figure 168), 57% said they needed more training to support the increased customer satisfaction strategy (Figure 169), and 71% said they needed more training to enable them to help become the leader in avionics and manufacturing excellence (Figure 170). When asked for what training they needed and why they can not get it, 63% responded with either they don't know what they need/what is available, or that NAC does not offer the courses needed/make them available (Table 15).

When asked to what extent NAC-sponsored training is connected to their career development, 53% of those responding said that most or all of it was, 44% said that a little or none of it was, and 3% said they did not know (Figure 171). The majority of respondents in Departments 400 and 700 said that most if not all of NAC-sponsored training is connected to their career development, whereas, the majority of respondents in Departments 800 and 900 said that only a little or none of NAC-sponsored training is connected to their career development (Figures 172, 173, 174, & 175).

Sixty-two percent of scientists said that NAC-sponsored training was connected to their career development as compared to 51% of the engineers (Figures 176 & 177).

Only 26% of those surveyed said that training had anything to do with their performance appraisals. Department 400 had 40% of its sample group who said training was related to their performance appraisal as compared to Department 900 who had

only 14% of its sample group who said training was related (Figure 181). A higher percentage of engineers believe training is related to their performance appraisal than do scientists (28% vs 19%) (Figure 181). Forty-three percent of the managers believe training is related to performance appraisals as compared to only 15% of the GS-12 paygrade group (Figure 182). Approximately half of the comments on how training is related to performance appraisals were linked to performing better on the job (Table 16). Another 35% linked the IDP process and career development with performance appraisals (Table 16).

Of those who said training was not related to performance appraisals, 42% said that it should be. Of this group, 44% said that training should be related because it is linked to job performance (Table 17).

In summary, the major trends which were identified in the responses of the sample population with respect to whether NAC-sponsored training is meeting the training needs of scientists and engineers at NAC are:

- that career development needs of scientists and engineers are not being met by NAC-sponsored training.

- that NAC-sponsored training is more connected to career development in Departments 400 and 700 than in any other department.

- that NAC-sponsored training is less connected to career development in Departments 800 and 900 than in any other department.

- that in general, NAC-sponsored training has little effect on performance appraisals.

- that more emphasis is given to training in performance appraisals in Department 400 than any other department.

- that less emphasis is given to training in performance appraisals in Department 900 than any other department.

- that less emphasis is given to training in the performance appraisals of scientists than for engineers.

- that managers place more emphasis on training in performance appraisals than any other demographic group.

- that more training is needed for scientists and engineers to support NAC's organizational goals.

- that in general, the technical and managerial training needs of scientists and engineers are being met by NAC-sponsored training.

- that NAC-sponsored training has increased the job satisfaction of scientists and engineers.

- that the job satisfaction of scientists and engineers in Departments 400 and 700 has been increased the most by NAC-sponsored training.

- that NAC-sponsored training increases the promotion potential of scientists and engineers.

- that NAC-sponsored training has the least effect on promotion of scientists and engineers in Department 800.

- that NAC-sponsored training increases the job responsibilities of scientists and engineers.

- that NAC-sponsored training has the least effect on job responsibilities of scientists and engineers in Department 800.

- that NAC-sponsored training increases the likelihood of a better job at NAC for scientists and engineers.

- that NAC-sponsored training has the most effect on getting better jobs at NAC for Hispanics, scientists and employees within Department 400.

- that NAC-sponsored training has the least effect on getting better jobs at NAC for Asians, those with 11-15 years of experience and employees within Department 800.

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- that NAC-sponsored training increases the marketability of scientists and engineers.

4. Most Useful NAC Training Courses

To find out which courses are most useful to scientists and engineers, the sample population was questioned about what type of training they get the most value from and what is the most preferred NAC-sponsored training course. In addition, scientists and engineers were asked questions about several of the NAC-sponsored training courses in which NAC invests heavily. These questions tried to determine which of the courses were good or bad and why, and what were the benefits that they received from this training. Finally, the sample population was asked to provide a "wish list" of the courses which they would like to have more access to.

Based upon the responses of the sample group, all of the NAC-sponsored training has been useful and beneficial to scientists and engineers at the Naval Avionics Center. When asked to identify the type of training they get the most value from, the most popular answer was off-site training (not college) (Figure 178). Almost as popular a choice is the use of on-the-job training (Figure 178). Conferences/seminars and on-site training courses are not far behind as third and fourth most valuable types of training (Figure 178). College

courses rank as the fifth most valuable type of training (Figure 178).

Although college courses ranks fifth among the most valued type of training, local colleges/universities rank first as the most preferred courses taught (Figure 179). Professional Association and private company taught courses are a close second and third most preferred courses (Figure 179). NAC-taught courses ranks a distant fourth as the most preferred training courses taught (Figure 179). The least preferred NAC-sponsored training courses are those taught through the National Technical University (NTU) (Figure 179).

Of the 20% of the sample population who has taken TQM courses (Figure 186), 61% said that the courses were good or excellent, 29% rated the courses fair, and only 10% believed the quality of the courses to be poor (Figure 187). When asked what benefits these courses provided them and NAC, 82% of those responded with positive comments about how they could be applied to their job (Table 19). Eleven percent said they received no benefit from the courses because they already new the concepts (Table 19). Only 7% provided negative comments regarding TQM and how it conflicts with NAC practices (Table 19).

When asked if TQM is consistent with NAC management practice, 26% made totally negative comments about the consistency of TQM and management practice at NAC, another 39% made somewhat negative comments, and 23% made somewhat

positive comments (Table 20). Thirteen percent made miscellaneous comments which were neither positive or negative (Table 20).

Of the 34% of the total sample population who has taken NTU courses, 75% of those has had only one or two courses (Figures 188 & 189). Of this group, 70% of those said the courses were fair or good (Figure 190). A higher percentage of the total sample population rated these courses poor than did the TQM courses (14% vs 10%), and a lower percentage rated these courses excellent than did the TQM courses (8% vs 21%) (Figures 187 & 190).

When asked what NTU courses have you had that stand out in your mind as especially good and why, only 37% of those sampled could list NTU courses which they considered good (Appendix B comments). In contrast, when asked what NTU courses have you had that stand out in your mind as especially bad and why, 41% of those sampled listed at least one NTU course which they considered bad (Appendix B comments).

When asked about the benefits of NTU courses, 56% of those responding said the courses benefitted their job in some way, 22% said it improves/provides new technical knowledge but does not specify job relevance, and 11% said that the knowledge is outside their expertise but might be used in the future (Table 21). Only 7% made negative comments that NTU training is a waste of time (Table 21).

Of the 34% of the total sample population who has taken time management courses, 70% said those courses were good or excellent (Figures 191 & 192). In contrast, only 4% of those surveyed said that the time management courses were poor (Figure 192). When asked about the benefits time management courses had for them and for NAC, 72% linked increased efficiency as the major benefit (Table 23). Another 21% stated they learned more about time management but did not link the knowledge gained to their job (Table 23). Only 7% said that they did not benefit from the time management courses (Table 23). The most common additional comment made by scientists and engineers was that everyone should take time management courses (Table 24).

Sixty-six percent of the total sample population has taken other technical courses other than through NTU (Figure 193). When asked what technical courses have you had that stand out in your mind as especially good and why, 84% of those surveyed listed at least one technical they had had which they considered to be good (Appendix B comments). In contrast, only 34% could list a technical course which they considered to be bad (Appendix B comments). There were no general trends noted in technical courses mentioned or why they were good or bad.

When asked about the benefits of those other technical courses, 91% were able to link the courses to improving their job performance or increasing their knowledge, awareness and

understanding (Table 25). Only 4% said they did not use what they learned on the job, but may later (Table 25).

Forty-eight percent of the sample population has taken management courses (Figure 194). When asked what management courses have they had that stand out in their mind as especially good and why, 86% of those surveyed were able to list at list one management course that they had taken which they considered good (Appendix B comments). Twenty-eight percent of those surveyed listed a program/project management course as being especially good (Appendix B comments). In contrast, when asked what management courses have they had that stand out in their mind as especially bad and why, only 14% of those surveyed listed a management course they considered to be bad (Appendix B comments).

When asked what benefits they saw as a direct result of the training, the general trend in their responses was that the training helps them to perform their jobs better (Appendix B comments).

Forty-seven percent of the sample group said that they had taken other training courses not previously mentioned (Figure 195). Although there were no general trends noted in the courses listed as especially good, 86% of those surveyed were able to list at least one course which they considered to be especially good (Appendix B comments). In contrast, only 23% of those surveyed listed a course which they considered to be bad (Appendix B comments). The general trend noted with

respect to benefits of these courses is that the greatest benefit is being able to apply the knowledge gained to their job or increase job performance (Appendix B comments).

When asked to rate NAC's training program, 54% of the total sample population said the program was average, 32% said the program was above average or excellent, and only 14% said the program was below average or unsatisfactory. Department 900 had the highest average (20%) of its sample population who said the training program was unsatisfactory or below average and the lowest average (20%) who said the training program was above average or excellent (Figure 200). Department 700 has the lowest average (9%) of its sample population who said the training program was unsatisfactory or below average (Figure 198). Department 400 had the highest average (37%) of its sample population who said the training program was above average or excellent (Figure 197).

The vast majority of scientists believe the training program is only average (Figure 202). In contrast, engineers have a much higher percentage of its sample group who believe the program is above average or excellent than do scientists (34% vs 19%) and a much higher percentage who believe the program is unsatisfactory or below average (16% vs 8%) (Figures 201 & 202).

When asked what their wish list would be for courses offered through NAC, 65% of the sample population listed at least one course (Appendix B comments). Of this group, 47%

wanted more technical related courses and 27% wanted more management related courses (Table 26). When asked what their recommendations would be for improving the way training is done at NAC, 75% of the sample population provided at least one recommendation (Appendix B comments). With the exception of miscellaneous comments, 65% of the recommendations concerned providing more information about the training program, providing a better organization/restructuring the process, providing career path information/counseling, and providing more job applicable courses/eliminate others (Table 27).

In summary, the major trends identified in the responses of the sample population with respect to which courses are most useful to scientists and engineers are:

- that the most valuable type of training is that which is conducted off-site (not college) or on-the-job training.

- that the most preferred type of training is that which is taught at local colleges/universities.

- that TQM courses have been beneficial to scientists and engineers.

- that TQM and NAC management practice are not totally consistent.

- that NTU courses have been beneficial to scientists and engineers.

- that more scientists and engineers have had what they consider "bad" NTU courses than "good" NTU courses.

- that the Time Management courses have been beneficial to scientists and engineers.

- that the Time Management courses are the most well-received courses by scientists and engineers than any other courses asked about.

- that other technical courses other than through NTU have been beneficial to scientists and engineers.

- that management courses have been beneficial to scientists and engineers.

- that program/project management courses are the most well-received management courses by scientists and engineers.

- that other training courses not previously mentioned have been beneficial to scientists and engineers.

- that in general, the NAC training program rates very well with scientists and engineers.

- that in general, Department 900 does not think as highly of the training program as the other departments.

- that in general, Departments 400 and 700 think more highly of the training program than the other departments.

V. CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

This chapter provides an overall assessment of NAC's training program and answers the specific investigative questions that were presented in Chapter I. After the specific investigative questions have been answered, recommendations are then made which NAC management may want to consider to alleviate perceived weaknesses in their training program. The recommendations are then followed by a chapter summary.

B. CONCLUSIONS

1. Overall Evaluation

The training program at the Naval Avionics Center receives generally high marks from scientists and engineers. Most of these professionals see the value in training and the value of NAC-sponsored training. The training opportunities at NAC are considered better than private sector/other public institutions/organizations, and has had some effect on swaying many scientists and engineers to work for the Naval Avionics Center rather than some other organization. Finally, NAC-sponsored training has had a positive effect on morale within NAC.

2. **Is there a need for NAC management to change the way in which the training progam is administered?**

It is clear from the responses of the sample group that there is a need for NAC management to change the way in which the training program is administered. There is a great amount of interest in NAC-sponsored training which suffers from a lack of information about the program. A well-advertised training program available to all employees, not just training representatives or managers, would eliminate many, if not all of the misconceptions employees have about the training program.

Inconsistencies in the use of Individual Development Plans to account for, allocate and track training for scientists and engineers by each department makes IDPs ineffective for administering the training program. The use of IDPs applied uniformly and consistently to all employees could be used to effectively document and project training needs.

Much of the confusion about career development and other training related needs occurs because the career path/track for scientists and engineers is not well-defined, if at all. For scientists, engineers and management to adequately plan for and achieve organizational, as well as individual career development goals, a career path/track for scientists and engineers and the training associated with these career paths/tracks, must be well defined.

3. **Is the training program given the support it needs to be effective?**

The training program is given overwhelming support from NAC's top leadership down to the supervisor level. Any problems scientists and engineers may have with the availability or access to NAC-sponsored training does not appear to be related to problems with a poor organizational climate or lack of support. In fact, many of the problems related with availability and access are due to training budgets and class sizes that cannot keep up with the overwhelming demand for NAC-sponsored training. A testament to the training program's worth is that two out of every three employees surveyed said that NAC-sponsored training had a moderate or significant impact on morale within NAC.

4. **Are the job needs of scientists and engineers being met by NAC's training program?**

Although the responses of the sample group indicate that their job satisfaction, responsibilities, marketability, promotion, and chances for a better job within NAC were increased as a result of training received through the training program, there were other job needs of scientists and engineers which are not being met by NAC's training program. These needs included training needed to support some of NAC's primary organizational goals of decreased cycle time, increased customer satisfaction, and to be the leader in

avionics and manufacturing excellence. In addition, NAC-sponsored training is not meeting the career development needs of its scientists and engineers. Currently, only 14% of the knowledge applied to jobs scientists and engineers are working on is attributed to NAC-sponsored training. Tailoring training at NAC so that it is more job applicable should raise the percentage of applied knowledge gained through NAC-sponsored training to projects scientists and engineers are working on.

5. **What kinds of NAC training are most useful to scientists and engineers?**

The responses of the sample group indicate that all NAC-sponsored training has been useful to some degree to scientists and engineers. The most popular course among scientists and engineers is the Time Management course. The least popular course among scientists and engineers are those provided through NTU. The types of training scientists and engineers get the most value from are those taught off-site (not college) and on-the-job training. The most preferred types of training are those taught by local colleges/universities and professional associations/private companies. Finally, most scientists and engineers would like to see more technical courses than any other type of course.

C. RECOMMENDATIONS

The following are recommendations for the training program at the Naval Avionics Center:

- Publish a booklet/phamphlet/instruction about the training program and distribute to all hands.

- Provide periodic lectures to all hands about the training program.

- List and make available to all hands training opportunities over the OA system.

- Publish a training plan.

- Standardize the use of IDPs and make mandatory for all employees.

- Define career paths/tracks for scientists and engineers.

- Designate training which should be accomplished for each career path/track.

- Provide more job applicable training.

- Provide more technical-related courses.

- Increase the number of times the more popular courses are offered.

- Ensure feedback is provided to individuals not selected for training.

D. SUMMARY

This chapter provided an overall assessment of NAC's training program and answered the specific investigative questions that were presented in Chapter I. Recommendations on how to improve the training program at NAC were also made.

Appendix A and B of this thesis provides the survey which was used to collect the data from the sample population, and

the comments from the open-ended questions from Section V of the survey.

APPENDIX A

NAC SCIENTIST AND ENGINEER TRAINING SURVEY

Dear Survey Participant:

Thank you for your willingness to participate in the Survey of Scientist and Engineer Communities at the Naval Avionics Center (NAC). **This survey is part of an ongoing study sponsored by NAC's Personnel Department to improve its customer service.** Participation such as yours will ensure that all viewpoints are reflected accurately in the conclusions and recommendations resulting from the study.

The main purpose of the study is to profile scientist and engineer training at the Naval Avionics Center. It is an opportunity to register your observations, concerns, and satisfactions on a number of training related topics and issues. This survey will allow us to see how the scientist and engineer communities feel about these issues.

The following questionnaire was custom designed for NAC. A few questions are standard demographic questions which help us with the statistical analyses of the data. But, most of the items reflect issues of specific concern to NAC as identified through interviews. These issues were identified as potential problem areas or as success areas.

If the study is to be a success, we need frank and honest answers. **All responses will be held in complete confidentiality.** Your answers will be combined with others so that no individual responses will be reported or made available to anyone.

The survey should take about 45 minutes to complete. Once the data are analyzed, a report of findings will be prepared and made available to all interested personnel.

Thank you for your cooperation.

<table>
<tr>
<td>Professor Alice Crawford
Department of Administrative Sciences
Naval Postgraduate School</td>
<td>Professor Stephan Mehay
Department of Administrative Sciences
Naval Postgraduate School</td>
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GENERAL SURVEY INSTRUCTIONS

In responding to the questions in this survey, we ask that you only consider NAC-sponsored on-site or off-site formal training courses. We <u>do not</u> want responses which make reference to mandatory-type administrative classes which everyone is required to attend (i.e., safety, cpr, sexual harassment, etc.).

Most of the questions in this survey will ask you:

- **HOW MUCH YOU <u>AGREE</u> OR <u>DISAGREE</u> WITH STATEMENTS**
- **HOW <u>IMPORTANT</u> THINGS ARE**
- **HOW <u>OFTEN</u> THINGS HAPPEN**
- **WHAT IS THE <u>DEGREE</u> OR <u>EXTENT</u> TO WHICH THINGS HAPPEN**

Most of these questions are answered by circling a letter or by rating/ranking your preferences. In addition, there are open questions which allow you to put in your own words your perceptions about the subject being asked about.

The survey is broken down into **5 SECTIONS**:

<u>SECTION</u>	<u>EXPECTED COMPLETION TIME</u>
SECTION I - DEMOGRAPHICS	**3 - 5 MINUTES**
SECTION II - ADMINISTRATION OF TRAINING	**7 - 10 MINUTES**
SECTION III - SUPPORT FOR TRAINING	**7 - 10 MINUTES**
SECTION IV - RESULTS FROM TRAINING	**7 - 10 MINUTES**
SECTION V - COURSE CONTENT EVALUATION	**10 - 15 MINUTES**

The entire survey should take between 40 and 50 minutes depending upon your responses.

Again, thank you for your cooperation.

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SECTION I - DEMOGRAPHICS

The following information is needed to help us with the statistical analyses of the data. All of your responses are **STRICTLY CONFIDENTIAL**; individual responses will be based on group averages. This information will allow comparisons to be made among different groups of employees.

PLEASE CIRCLE THE LETTER BESIDE THE APPROPRIATE RESPONSE FOR EACH QUESTION OR BY WRITING IN THE CORRECT INFORMATION.

1. Are you: **a.** female   **b.** male

2. Are you: **a.** American-Indian   **b.** Asian-American
              c. Hispanic-Origin   **d.** Black
              e. White   **f.** Other_____

3. Are you married?   **a.** No   **b.** Yes

4. What is your job series number (e.g., 0855-Electronics Engineer)?

_____

5. Which one of the following age groups are you in?

   a. 21 - 25 **b.** 26 - 30 **c.** 31 - 35 **d.** 36 - 40
   e. 41 - 45 **f.** 46 - 50 **g.** 51 - 55 **h.** Over 55

6. How many years have you worked at NAC?

   a. under 1 yr   **b.** 1 - 5 yrs   **c.** 6 - 10 yrs
   d. 11 - 15 yrs   **e.** 16 - 20 yrs   **f.** over 20 yrs

7. Please provide the following information:

   Type of Degree Attained   **Date Degrees Earned**   **University**

   _____   _____   _____

   _____   _____   _____

   _____   _____   _____

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8. What was your prior work experience?

_____

_____

_____

9. Your paygrade is? GS/GM - _____

10. Your department/division/branch is?

   Dept:_____ Div:_____ Br:_____

11. What is your supervisory experience?

   a. I am not a formally designated supervisor and I have
      not supervised other persons during the past year.
   b. I am not a formally designated supervisor but I have
      supervised other persons during the past year.
   c. I have been a formally designated supervisor for less
      than 1 year.
   d. I have been a formally designated supervisor for 1 to
      5 years.
   e. I have been a formally designated supervisor for more
      than 5 years.

12. Approximately how many days of NAC-sponsored training
have you attended? (training includes formal eduction,
seminars, etc.)

   FY - 89 _____

   FY - 90 _____

   FY - 91 _____

13. What are your current intentions towards making NAC a
career?

   a. Definitely will not
   b. Probably will not
   c. Not sure/undecided
   d. Probably will
   e. Definitely will

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SECTION II - ADMINISTRATION OF TRAINING

Q1 - How do you feel about the following statements?

READ EACH STATEMENT CAREFULLY AND THEN CIRCLE YOUR ANSWER ACCORDING TO THE FOLLOWING SCALE:

SD-Strongly Disagree-I strongly disagree with the statement
 D-Disagree-I disagree with the statement, but not strongly so
 N-Neutral-I am neutral toward the statement
 A-Agree-I agree with the statement, but not strongly so
SA-Strongly Agree-I strongly agree with the statement

a. I am familiar with the full range of   **SD   D   N   A   SA**
training courses offered by NAC.

b. I am unsure how to apply for or obtain **SD   D   N   A   SA**
information about NAC-sponsored training.

c. In general, NAC is responsive to   **SD   D   N   A   SA**
suggestions for improving the quality of
the courses given.

d. A purpose of NAC-sponsored training is **SD   D   N   A   SA**
to REWARD GOOD PERFORMANCE.

e. A purpose of NAC-sponsored training is **SD   D   N   A   SA**
to **CORRECT JOB PERFORMANCE DEFICIENCIES.**

f. A purpose of NAC-sponsored training is SD   **D   N   A   SA**
to **CONTRIBUTE TO THE CAREER DEVELOPMENT OF
NAC EMPLOYEES.**

g. I would be more interested in NAC-   **SD   D   N   A   SA**
sponsored training if I knew more about it.

PLEASE CIRCLE THE LETTER BESIDE THE APPROPRIATE RESPONSE FOR EACH QUESTION OR BY WRITING IN THE CORRECT INFORMATION.

Q2 - Do you have an Individual Development Plan (IDP)?

   a. No   b. Yes

Q3 - If you answered "Yes" to the above question (#2), does training have to be listed on the IDP for it to be approved?

   a. No   b. Yes

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Q4 - Does anyone, other than you, have input into your IDP?

    a.   No

    b.   Yes (If yes, who?) _____

_____

Q5 - What can be done to improve the IDP process?

_____

_____

_____

_____

_____

_____

Q6 - Are you clear on what training you need for your career development?

    a.   No   b.   Yes

Q7 - If you answered "Yes" to the above question (#6), are you able to get the training you need for your career development?

    a.   No   b.   Yes

Q8 - If you answered "No" to the above question (#7), why are you not able to get the training you need for your career development?

_____

_____

_____

_____

Q9 - Have you ever enrolled in a NAC-sponsored training course, but not completed it?

    a. No

    b. Yes (If Yes, What were they?) _____

    _____

Q10 - Have you earned a master's degree through a NAC-sponsored advanced degree program?

    a. No   b. Yes

Q11 - Which of the following best describes your plans or goals for formal graduate-level education?

    a. I do not plan to pursue a degree, but I will probably
         take graduate-level courses.

    b. I plan to earn a master's degree

    c. I plan to earn a PH.D.

    d. I have no plans or goals for graduate-level education.

    e. I have already earned the advanced degree I want.

Q12 - If you circled {a} to the above question (# 11), please list why you do not plan to pursue a degree.

_____

_____

_____

Q13 - If you circled {b} to question #11, please list the type of master's degree and why.

_____

_____

_____

Q14 - If you circled {c} to question #11, please list the type of PH.D and why.

_____

_____

Q15 - If you circled {d} to question #11, please list why you have no plans or goals for graduate-level education.

_____

_____

_____

Q16 - If you have not applied for any NAC-sponsored training courses, what are the reason(s)?

FROM THE FOLLOWING LIST, SELECT <u>THREE</u> AND THEN RANK THEM IN ORDER OF IMPORTANCE:

1 = MOST IMPORTANT REASON

2 = SECOND MOST IMPORTANT REASON

3 = THIRD MOST IMPORTANT REASON

[   ] College "Burn-Out"

[   ] Quality of instruction

[   ] Monetary costs to me

[   ] Time it would take me away from my family

[   ] No reward/benefits at NAC for taking courses

[   ] Time it would take me away from my job

[   ] My family situation

[   ] I can't decide what I need

[   ] Location of training courses

[   ] Personal motivation

[   ] Job experience is more important than NAC-sponsored training

[   ] Other (please explain) _____

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SECTION III - SUPPORT FOR TRAINING

PLEASE CIRCLE THE LETTER BESIDE THE APPROPRIATE RESPONSE FOR EACH QUESTION OR BY WRITING IN THE CORRECT INFORMATION.

Q1 - What is the extent to which NAC makes training courses available for you?

    a.   I can take all the courses I require or want.

    b.   I can take most of the courses I require.

    c.   I have to compete with others for the courses that I receive.

    d.   NAC provides only **minimum** training availability for me.

    e.   NAC does not make training courses available for me.

    f.   Other (please specify) _____

Q2 - Have you ever been denied approval for attendance at NAC-sponsored training courses? If so, how often and for what reasons?

    a.   No

    b.   Yes, _____ time(s).   Reason(s): _____

                                          _____

                                        _____

    c.   Have not applied for any courses.

Q3 - Does anyone at NAC have greater access to NAC-sponsored training than others?

    a.   No

    b.   Yes (If Yes, Who?) _____

                                    _____

Q4 - How do you feel about the following statements?

READ EACH STATEMENT CAREFULLY AND THEN CIRCLE YOUR ANSWER ACCORDING TO THE FOLLOWING SCALE:

SD-Strongly Disagree-I strongly disagree with the statement
 D-Disagree-I disagree with the statement, but not strongly so
 N-Neutral-I am neutral toward the statement
 A-Agree-I agree with the statement, but not strongly so
SA-Strongly Agree-I strongly agree with the statement

a. My duties and responsibilities in my   SD   D   N   A   SA
current job prevent my attendance at
NAC-sponsored training courses.

b. My supervisor often selects for   SD   D   N   A   SA
courses those people who can be "spared"
rather than those who might benefit most.

c. The availability of training at NAC   SD   D   N   A   SA
was an important factor in my decision to
work at NAC.

d. My supervisor feels that my duties at   SD   D   N   A   SA
NAC take precedence over attendance at
NAC-sponsored training courses.

e. My supervisor encourages attendance   SD   D   N   A   SA
at NAC-sponsored training courses.

f. My branch manager supports and   SD   D   N   A   SA
encourages attendance at NAC-sponsored
training courses.

g. My department supports and encourages   SD   D   N   A   SA
attendance at NAC-sponsored training
courses.

h. NAC "Top Leadership" supports and   SD   D   N   A   SA
encourages attendance at NAC-sponsored
training courses.

Q5 - What do you see as the greatest obstacle(s) to getting the training you need or would like?

FROM THE FOLLOWING LIST, SELECT <u>THREE</u> AND THEN RANK THEM IN ORDER OF IMPORTANCE:

        1 - GREATEST OBSTACLE

        2 - SECOND GREATEST OBSTACLE

        3 - THIRD GREATEST OBSTACLE

[   ]   None, there are no obstacles

[   ]   None, I am not interested in any NAC-sponsored courses

[   ]   Too much TDY

[   ]   Monetary Costs to me

[   ]   Monetary Costs to NAC

[   ]   Personal motivation

[   ]   My supervisor

[   ]   My family situation

[   ]   NAC leadership other than my supervisor

[   ]   I can't decide what I need

[   ]   Lack of available training courses

[   ]   My workload

[   ]   Time

[   ]   Not sufficiently job related to justify

[   ]   Quotas

[   ]   Location of training courses

[   ]   Other (please specify) _____

Q6 - How do you think training opportunities at NAC compare with those of private sector organizations?

    a.   Much less

    b.   Somewhat less

    c.   About the same

    d.   Somewhat more

    e.   Much more

    f.   No basis for comparison

Q7 - How do you think training opportunities at NAC compare with those of other public institutions/organizations?

    a.   Much less

    b.   Somewhat less

    c.   About the same

    d.   Somewhat more

    e.   Much more

Q8 - To what extent do you believe NAC-sponsored training has a positive effect on morale within NAC?

    a.   Not at all

    b.   A little, but not much

    c.   It has a moderately significant impact

    d.   It has a <u>very significant</u> impact

Q9 - To what extent do you use the skills you have learned from training? That is, do you get the opportunity to put into practice the new skills you learn?

TECHNICAL TRAINING: _____

_____

_____

_____

_____

MANAGERIAL TRAINING: _____

_____

_____

_____

OTHER? (PLEASE SPECIFY): _____

_____

_____

_____

_____

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SECTION IV - RESULTS FROM TRAINING

Q1 - How do you feel about the following statements?

READ EACH STATEMENT CAREFULLY AND THEN CIRCLE YOUR ANSWER ACCORDING TO THE FOLLOWING SCALE:

SD-Strongly Disagree-I strongly disagree with the statement
 D-Disagree-I disagree with the statement, but not strongly so
 N-Neutral-I am neutral toward the statement
 A-Agree-I agree with the statement, but not strongly so
SA-Strongly Agree-I strongly agree with the statement

a. In general, the courses improved my   SD   D   N   A   SA
technical capabilities.

b. In general, the courses improved my   SD   D   N   A   SA
managerial capabilities.

c. In general, the courses have increased SD   D   N   A   SA
my job satisfaction.

d. In general, the courses have enhanced SD   D   N   A   SA
my promotion potential.

e. In general, I believe the courses have SD   D   N   A   SA
led to increased job responsibilities.

f. In general, the courses have enhanced SD   D   N   A   SA
my marketability with other agencies/
firms.

g. In general, the training courses I   SD   D   N   A   SA
have taken make it more likely I will
leave my NAC job for a job elsewhere
(outside NAC).

h. In general, the training courses I   SD   D   N   A   SA
have taken have improved my credentials
for a better job at NAC.

i. I have gotten new ideas/new approaches SD   D   N   A   SA
to my job as a benefit of the training
I have received.

Q2 - For the work you are doing right now, what percentage of your training came from:

       School (prior to being hired)   _____

       "On-The-Job" training   _____

       "On-The-Job" experience   _____

       NAC-sponsored formal training   _____

                              Total: 100%

Q3 - Do you have all the training you need in order to know what to do to support NAC's organizational strategies of:

DECREASED CYCLE TIME: a.   No   b.   Yes

INCREASED CUSTOMER SATISFACTION: a.   No   b.   Yes

LEADER IN AVIONICS AND MANUFACTURING: a.   No   b.   Yes
        EXCELLENCE

Q4 - If you answered no to any of the strategies in question # 3, what training do you need and why can't you get it?

_____

_____

_____

Q5 - To what extent do you believe NAC-sponsored training is connected to your career development?

    a.   Not at all

    b.   A little, but not much

    c.   Most of it does

    d.   All of it does

    e.   I don't know

Q6 - What type of training do you get the most value from?

FROM THE FOLLOWING LIST, SELECT THREE AND THEN RANK THEM IN THE ORDER OF MOST VALUE TO YOU:

1 - GREATEST VALUE

2 - SECOND GREATEST VALUE

3 - THIRD GREATEST VALUE

```
[   ]  I don't know
[   ]  On-The-Job Training
[   ]  Training classes on-site
[   ]  Training classes off-site (Not College)
[   ]  College courses  _____
[   ]  College courses  _____
[   ]  College courses  _____
[   ]  College courses  _____
[   ]  Conferences/seminars
[   ]  Other (please specify)_____
```

Q7 - Identify the most preferred NAC-sponsored training courses.

FROM THE FOLLOWING LIST, SELECT THE THREE MOST PREFERRED TYPES OF COURSES AND RANK THEM.

1 - MOST PREFERRED COURSE

2 - SECOND MOST PREFERRED COURSE

3 - THIRD MOST PREFERRED COURSE

```
[   ]  I don't know
[   ]  Local colleges/universities
[   ]  NTU
[   ]  Contractors with the Federal Government
[   ]  Professional associations
[   ]  Private companies
[   ]  NAC-taught
[   ]  Others not shown (please specify) _____
[   ]  _____
```

Q8 - Is training related to your performance appraisal?

    a.   No

    b.   Yes (If so, how?) _____

_____

_____

_____

Q9 - If no, <u>should</u> training be related to your performance appraisal?

    a.   No

    b.   Yes (If so, how?) _____

_____

_____

_____

SECTION V - COURSE CONTENT EVALUATION

PART A - TOTAL QUALITY MANAGEMENT (TQM) COURSES

Q1 - Have you had any of the TQM courses?

    a. No   b. Yes

NOTE: If you answered no to this question, please go on to Part B.

Q2 - Please list the TQM courses you have attended in the past two years and rate the quality of each according to the following scale:

    POOR - Needs lots of work
    FAIR - Okay, but only okay
    GOOD - Still some room for improvement
    EXCELLENT - No sweat!

Title of course   Quality Rating

_____   _____

_____   _____

_____   _____

Q3 - What benefits do these courses offer you and for NAC?

_____

_____

_____

_____

Q4 - How consistent is TQM with management practice here? (To the extent possible in a government system).

_____

_____

_____

_____

PART B - NTU COURSES

Q1 - Have you taken any NTU courses?

    a. No   b. Yes

NOTE: If you answered no to this question, please go on to Part C.

Q2 - About how many courses have you taken? _____

Q3 - Evaluate the quality of the NTU courses you have taken by circling the letter beside the appropriate response.

    a.   **POOR - Needs lots of work**

    b.   **FAIR - Okay, but only okay**

    c.   **GOOD - Still some room for improvement**

    d.   **EXCELLENT - No sweat!**

    e.   The quality of the NTU courses have ranged from POOR to Excellent

    f. Other (Please specify) _____

_____

_____

_____

_____

_____

_____

_____

Q4 - What NTU courses have you had that stand out in your mind as especially good and why?

_____

_____

_____

_____

_____

Q5 - What benefits did you see as a direct result of the training?

_____

_____

_____

_____

Q6 - What NTU courses have you had that stand out in your mind as especially bad and why?

_____

_____

_____

_____

_____

_____

PART C - <u>TIME MANAGEMENT COURSE</u>

Q1 - Have you ever taken any Time Management courses?

    a. No   b. Yes

NOTE: If you answered no to this question, please go on to Part D.

Q2 - Evaluate the quality of the Time Management course you took by circling the letter beside the appropriate response.

    a.   POOR - Needs lots of work

    b.   FAIR - Okay, but only okay

    c.   GOOD - Still some room for improvement

    d.   EXCELLENT - No sweat!

Q3 - What benefits have these courses had for you and for NAC?

_____

_____

_____

_____

_____

Q4 - Do you have any additional comments you would like to share concerning the Time Management course?

_____

_____

_____

_____

_____

PART D - <u>TECHNICAL COURSES</u>

Q1 - Have you taken any other technical courses other than thru NTU, to include any college courses?

    a. No   b. Yes

NOTE: If you answered no to this question, please go on to Part E.

Q2 - What technical courses have you had that stand out in your mind as especially good and why?

_____

_____

_____

_____

Q3 - What benefits did you see as a direct result of the training?

_____

_____

_____

Q4 - What technical courses have you had that stand out in your mind as especially bad and why?

_____

_____

_____

_____

_____

_____

PART E - <u>MANAGEMENT TRAINING COURSES</u>

Q1 - Have you ever taken any Management Training courses other than TQM?

    a. No   b. Yes

NOTE: If you answered no to this question, please go on to Part F.

Q2 - What management courses have you had that stand out in your mind as especially good and why?

_____

_____

_____

_____

Q3 - What benefits did you see as a direct result of the training?

_____

_____

_____

Q4 - What management courses have you had that stand out in your mind as especially bad and why?

_____

_____

_____

_____

_____

PART F - <u>OTHER TRAINING COURSES NOT PREVIOUSLY COVERED</u>

Q1 - Have you taken any "other" training courses not previously mentioned?

    a. No   b. Yes

NOTE: If you answered no to this question, please go on to Part G.

Q2 - What other courses have you had that stand out in your mind as especially good and why?

_____

_____

_____

_____

_____

Q3 - What benefits did you see as a direct result of the training?

_____

_____

_____

Q4 - What other courses have you had that stand out in your mind as especially bad and why?

_____

_____

_____

_____

_____

_____

PART G - <u>OVERALL EVALUATION OF NAC'S TRAINING PROGRAM</u>

Q1 - Overall, how would you rate NAC's training program?

    a.   Unsatisfactory

    b.   Below Average

    c.   Average

    d.   Above Average

    e.   Excellent

Q2 - What would be your "wish list" for courses offered through NAC? PLEASE SPECIFY WHAT COURSES, IN ANY SUBJECT AREA, THAT YOU WOULD BE INTERESTED IN TAKING IF THEY WERE OFFERED.

_____

_____

_____

_____

Q3 - What recommendations would you make to improve the way training is done at NAC?

_____

_____

_____

_____

_____

_____

APPENDIX B

A. PART A - TOTAL QUALITY MANAGEMENT (TQM) COURSES

Q1 - Have you had any of the TQM courses?
N = 147

RESPONSE	FREQUENCY	PERCENT
NO	115	79.9
YES	29	20.1
DID NOT ANSWER	3	

Q2 - Please list the TQM courses you have attended in the past two years and rate the quality of each according to the following scale:

POOR - Needs lots of work
FAIR - Okay, but only okay
GOOD - Still some room for improvement
EXCELLENT - No sweat!

RESPONDENT	TITLE OF COURSE	RATING
004	Taguchi Methods	Good
	SPC	Good
013	Statistical Process Control	Fair
017	Introduction to Deming	Poor
	TQM	Fair
025	SPC	Good
030	SPC	Good
	TQM Overview	Fair
	TQM Seminar Sponsored by NAC	Good
040	Deming (live)	Good
	Deming Update (tape)	Good
	Dr Tom (tape)	Excel
042	SPC	Fair
050	CIC Reorganization	Good

057	Quality Func. Deployment SPC/TQM (By ITTRI)	Good Poor
059	Don't remember titles	Poor
062	TQM (Don't remember name)	Fair
068	Deming Stat. Proc. Control Seminar	Excel Excel
071	Taguchi Method	Fair
073	Statistical Process Control	Fair
080	Sonobuoy TQM?	Fair
098	Handshake HVM	Good Good
099	High Velocity Mfr Quality Control Principles Reliability Engineering	Good Excel Excel
109	Intro to TQM	N/R
110	Deming Seminar Teambuilding	Good Good
114	HVM	Fair
115	HVM course	Good
119	SPC	Good
124	NORTHDIV Total Quality Leadership (TQL)	Excel
128	SPC PMC/PMA IUPUI classes	Fair Excel
130	Cannot remember titles	Fair
133	Gold Ratt Seminar	Poor
135	Deming Seminar	Excel
138	Deming Seminar	Good
145	One day SPC All the others	Fair Excel

Q3 - What benefits do these courses offer you and for NAC?

004   New concept, different way of thinking as quality
       is judged in loss of funds, money. SPC is
       currently used everywhere.

013   Ideas for and way to improve.

017   Did not answer.

025   It made me want to learn more about TQM.

030   TQM initiative helps to ensure survival.

040   Examples, process definitions, and ideas for TQM
       and continued improvement.

042   Awareness of tools available for improving NAC
       functions.

050   A better approach to the work environment.

057   Shows us the direction we need to be going to keep
       the doors open. Shows us techniques (i.e.,
       Brainstorming) to use in continuous improvement
       teams.

059   Much of what was taught conflicted with NAC
       practices. This makes it difficult to get much
       benefit.

062   Very short, not much detail, but it helped me
       understand a little about the new trend, and
       helped me better relate to subcontractor
       already involved with it.

068   They provide a coherent vision for the future of
       NAC. They allow me to think more creatively
       and innovatively which can only help NAC as a
       whole.

071   More efficient utilization of resources and reduced
       cost.

073   Quick exposure/limited cost.

080   None. I was already familiar with the concepts.

098   Promote common direction & teamwork.

099   Ability to make effective decisions, and make
        processes more efficient.

110   Show us another, better way to do business.

114   Good management ideals, problem solving and control
        skills, understanding operator versus
        management owned processes, understanding
        special cause versus common cause problems and
        the different processes required to solve one
        versus the other.

115   Shows potential for improvement through teamwork.

124   Self-improvement potential based on applying
        principles to my job (at working level).

128   They broaden the breadth & deepen the depth of
        understanding of the subject.

130   Method for implementing TQM.

133   I feel that the theories are good to know, but I
        think that it is unfortunate that NAC is not
        practicing them. If NAC isn't going to follow
        these theories, then they should stop teaching
        them.

135   Job/Technical knowledge.

138   Provided insight into a method of management.

145   How to interact with groups and one-on-ones (people
        skills!).

Q4 - How consistent is TQM with management practice here?
(To the extent possible in a government system).

004   It is important and necessary.

013   Many of these ideas seem to be backed by management
        but never are implemented at the working level.

017   It is difficult to judge. There are many
        initiatives going on, but their effectiveness
        is minimal because many are still in the
        learning curve portion.

025   NAC is trying to conform to TQM and has gone a long
        way since I started 10 years ago; but they
        still have a way to go.

030   Getting closer together but still disjointed. When
        the heat is on, old schools of thought
        sometimes prevail!

031   None! I'm fed up with these quick-fix programs
        that have been coming down the pipeline in the
        last few years. Improve quality - yes; but
        don't preach at us. Do it, don't mouth it.

040   We seem to be a leader in TQM especially within the
        government. We also, however, seem to want to
        change processes for the sake of change instead
        of for improvement (at times, not everytime).

042   We ignore data but try to use some of the
        principles.

050   It is improving some attitudes.

057   TQM is making gradual progress at NAC. Most of
        D/400 practices it, but I don't know about the
        other departments.

059   Many times much conflict.

062   Beginning to follow its practices, but still a
        long way to go.

068   I cannot say. From "Top Side" since I am too far
        away, but closest to where I work is extremely
        variable. From very good to very poor with
        mostly mediocre.

071   At this time it is not very consistent.

073   It was important with CIC managers in 400.
        However, I believe there was never a very
        strong commitment at the highest levels.

080   Very dependent upon individual Branch Manager.

098   Micromanaged.

099   TQM not totally incorporated at NAC mainly because
        barriers still exist between departments and
        divisions and project management is not
        standardized.

109   I still think we have an "old" management style
        that only talks new.

110   Not very. Some organizations within NAC have
        embraced TQM more than others. There are still
        many managers who say they believe in TQM but
        don't carry out in practice.

114   In practice - limited.

115   Dependent on individual supervisor.

124   In my division - partly practiced (50% of time).
        In Branch - almost fully practices.

128   "Some" managers practice what they preach . . .
        many do not. We probably do much better than
        most.

130   Poor.

133   It isn't.

135   Not very.

138   Inconsistent - we often change philosophies
        depending on convenience.

145   Right now mostly lip service and that is why it has
        not been that effective!!

B. PART B - NTU COURSES

Q1 - Have you taken any NTU courses?
N = 147

RESPONSE	FREQUENCY	PERCENT
NO	94	65.7
YES	49	34.3
DID NOT ANSWER	4	

Q2 - About how many courses have you taken?
N = 47

# OF RESPONDENTS	# OF COURSES
20	1
15	2
5	3
4	4
1	5
2	8

Q3 - Evaluate the quality of the NTU courses you have taken by circling the letter beside the appropriate response.

N = 49

FREQUENCY	PERCENT	CATEGORY
7	14.3	POOR - Needs lots of work
16	32.7	FAIR - Okay, but only okay
18	36.7	GOOD - Still some room for improvement
4	8.2	EXCELLENT - No sweat!
3	6.1	The quality of the NTU courses have ranged from POOR to Excellent
1	2.0	Other:

Q4 - What NTU courses have you had that stand out in your mind as especially good and why?

RESPONDENT

050   Project Management.

051   Queing Theory.

353

057   "Management into the 90s" was good because it used
        assorted speakers from industry to discuss the
        topics.

059   Software Course (C)

060   Design for experiments. Well thought out course.

066   The best is a course in Data Structures from Purdue
        U. It was especially good because of the
        highly motivated instructor.

068   Technologies in local area networks for the 90s -
        showed where this field is going to. NAC must
        keep up. Statist. Proc. Control! Helped put
        Deming's ideas on paper. Helped Quantify.

080   CC760-0 Digital Signal Processing - Oklahoma State
        treated me as a paying customer! Despite
        travel, a new child & wife's illness, I was
        able to complete course with A. Taped classes
        & flexible deadlines were a big help.

085   Robin Sellers presentations on CFC and hazardous
        waste minimization. Short, concise, and a good
        speaker.

091   Materials Synthesis - there wre several excellent,
        knowledgeable instructors. The instructor is
        what makes the course. How to Develop Good
        Study Habits was another good one. The
        instructor gave good tips and was interesting.

095   The one on Making Presentations - the instructor
        used his own techniques to give the class; this
        was a practical example on how well his
        techniques worked.

098   Contracting in Government - my lack of knowledge -
        this course gave me knowledge.

116   Writing Skills - improves communication and is the
        basis for further development of the individual
        for either technical or administrative career.

126   Design of Statistical Experiments was good.

129   I thought a course about Computer Interface Design
        was good because it made several points which
        I had not previously considered. I was able to
        use these points in one of my systems.

131   Professional Engineer Training Statistics - good
             instructor, used many examples/graphs, did not
             just "read" the slide.

135   Design of Experiments.

136   MB510 from Univ of Missouri - the professor
             involved everyone in group discussions &
             projects. You could see the other people in
             the classroom. The professor was available for
             consultation.

Q5 - What benefits did you see as a direct result of the training?

RESPONDENT

002   Learned UNIX operating system (a job requirement)

029   My technical knowledge of my position increased
             greatly.

034   It did provide me with additional knowledge in my
             area of expertise.

041   Kept me abreast of disciplines outside my immediate
             specialty.

050   A way to organize a project and workload.

051   Application to FO Data Busses.

057   Gave a foundation for management to build on for
             the future.

059   Improved the quality & speed of work being
             performed.

060   Its a valuable tool for me to have at my disposal.

066   The above course "Data Structures" was immediately
             used to evaluate & select the best data search
             scheme in a software design program I was
             working on.

068   Focusing on the future in my present designs.

080   Directly applied to job programming signal processor boards.

083   I saw it as a waste of time. The class I took was very poor in getting through to the audience.

085   Better insights into the environmental problems. Opportunities to improve NAC operations.

088   Some new ideas to imporve NAC were presented in the class.

090   Refreshed mind on C Programming.

091   Many ideas were generated by the above courses which have been used in my work.

093   Very little.

095   Ever since I took that class, my briefs have improved tremendously - I feel more confident today giving briefs.

098   Better understanding of Contracting Problems.

116   Improve my written communications with my supervisors.

126   Who is working in field and what their direction was.

129   I got a different viewpoint to a familiar problem.

131   Went home to brush up on my math skills - realize must take classes to be competitive.

135   Technical skills.

136   I've learned more about how to become an effective manager.

Q6 - What NTU courses have you had that stand out in your mind as especially bad and why?

<u>RESPONDENT</u>

005   NOVELL LANS in the 90s. It was poorly given. The lectures were not clear and it seemed very piece-meal.

013   Instructor seems totally unaware of students needs. Difficult to get questions back to instructor and answered.

031   Dry; often too precisely oriented to a very narrow area, that only a real devotee of that subject could follow. I'd attend, but I don't want that much detail.

036   I forgot the name of the course, but it was one that sounded like it would be good, but turned out to be essentially a waste of several hours. It was non-instructional in format, lectures were incoherent and confusing, literature was not sufficient for later study.

039   In general, the main advantage of NTU is the convenience. However, most of the ones I have taken are bad because of lack of contact with the instructor, poor quality class notes or viewgraph copies (some of which you never receive anyway), poor presentation by the instructor, and lack of access to their on-site lab facilities (in some cases).

051   Composite Materials - does not introduce anything new.

058   These types of courses do not keep you interested in the subject. Just like watching a TV program.

063   Digital Design Practices. It was not live so we couldn't ask questions. The worse thing was, however, that we only "read & heard about the systems." It is not at all beneficial to learn computers from a book. You need the hardware.

085   Research on Research - speakers were not very vibrant. Content was totally geared toward private sector R - D and how to market a

product. Almost nothing which would apply to a government worker or a government facility.

088   The course was taped and the quality of the tapes were very bad. There were some tapes (20%) which you couldn't see the material presented or clearly hear the professor.

090   Need hands on - was a computer class - hard to follow with just manual.

091   This is dependent upon the instructor teaching the courses. Some are superb - others are real bores. I can't remember the names because I dropped out of the classes.

093   Both, one was a short course and the target audience needed to be better informed. The material was helpful outside the class. The second class instructor did not concentrate enough on teaching but treated the class as a big party time. He needs to be more serious about his teaching.

096   Semiconductor course - too technical, it seemed only those people in the college classroom understood the material.

098   A few - no listing. Generally the instructor was not formated - did not have control - and rambled.

110   Professional Engineering Exam Review Course. Very, very dry. Boring (its hard for them to be not boring to begin with). No interaction.

126   Superconductivity could have been better if there was an opportunity to have a seminar with peers.

131   Designing Microcircuits - teacher was in his own world - too technical for most people.

136   Industrial Psychology - the course material was vague and hard to relate to the textbook. The professor was unavailable. He also tested on material that was not adequately covered in class and was not mentioned in reference books. Too much research was involved.

139   No specific courses stand out in my mind, however,
        I do remember that they were very boring.

C.   **PART C - TIME MANAGEMENT COURSE**

Q1 - Have you ever taken any Time Management courses?
N = 147

RESPONSE	FREQUENCY	PERCENT
NO	97	66.4
YES	49	33.6
DID NOT ANSWER	1	

Q2 - Evaluate the quality of the Time Management course
you took by circling the letter beside the appropriate
response.
N = 50

FREQUENCY	PERCENT	CATEGORY
2	4.0	POOR - Needs lots of work
13	26.0	FAIR - Okay, but only okay
25	50.0	GOOD - Still some room for improvement
10	20.0	EXCELLENT - No sweat!

Q3 - What benefits have these courses had for you and for
NAC?

RESPONDENT

006   My tasks are far more organized on a daily basis &
        past actions are quickly reviewed.

010   I have been more organized and have been able to
        respond to sponsors needs quicker. This was
        mainly a project management class but the time
        management portion was very useful.

018   I now achieve a better task completion rate - NAC
        gets more results.

024   The course helped me realize when I waste time.

359

029   I've learned very basic concepts and have attempted
        to implement them.

030   When applied I operate more efficiently.

031   Some benefits - if nothing else, just the HOPE that
        better ideas for managing time exist. Have
        picked up some ideas of use. Audience
        participation at time management courses helps
        to blow off steam and to share strategies that
        have worked for others in similar situations.

032   I am a little more organized, but need to be better
        organized.

034   Helped in organizing my work and tasks.

040   The time management course was a section within a
        supervisor institute course. It helped in ways
        such as "to-do" lists, etc.

041   Quantum improvement in management of my time;
        increased efficiency; able to stay productively
        involved in numerous tasks simultaneously; more
        creativity.

042   Pointed out some common sense approaches that were
        not new but were not always practiced.

055   Gave some tips on how to eliminate time wasting
        situations.

057   Organization throughout the week has improved.
        Leads to better job efficiency.

058   Gives tools of how to manage your time on the job.
        If used regularly, it will help make the job
        easier.

061   Got a few good ideas which I have used but nothing
        spectacular.

064   It helped to organize & prioritize time & workload.

069   It helps me prioritize my work or tasks for the day
        or week. Helps keep things in perspective.

070   I have learned to manage my time better to allow me
        to complete projects on time.

071   Obviously to provide tools which I can use to more
       effectively use my limited time as well as
       others. I have experienced only moderate
       results from the class techniques.

085   Better organized. Better time estimates. Have
       identified tasks to be delegated.

086   Helps me organize my tasks.

087   Increased my efficiency by letting me learn a few
       suggestions on how to minimize my time on the
       phone.

090   Time is not wasted. Things are not forgotten.
       They are written down.

091   I am more conscious about using good time
       management principles although I need room (a
       lot of room) for further improvement.

097   Better organize time, get more accomplished.

098   Awareness of how you do or don't use your time.

101   Taught me to set specific goals for completion of
       assignments.

109   They gave you good ideas for managing your day,
       work, distractions.

110   To help me more efficiently use my time, and become
       more productive for NAC.

111   Made me aware of inefficiencies in my use of time.

114   Some improvement.

115   Identified that all tasks are not priority.

117   None really - getting things done seminar is the
       only time management class taken.

118   Organizing myself, prioritizing work.

128   It helps with organizing thoughts, plans & actions.
       It has helped me to be more aware of doing the
       right thing right and at the right time!

130   Improved time management skills.

136   Very little.

138   Didn't learn anything new. Only reenforced common
        sense.

139   Reenforced some of my existing organizational
        skills.

140   The courses helped me schedule things better &
        avoid "time wasters".

141   I know I should try to manage my work time for more
        efficiency.

    Q4 - Do you have any additional comments you would like to
share concerning the Time Management course?

RESPONDENT

006   All those whom I know have taken it, use it daily.
        Quite impressive!

017   The course I attended was very poorly structured --
        a "low bidder" to compensate for the other
        course where attendees received "leather bound
        time keeper/organizers."

018   Everyone should take one.

024   One half-day would have been sufficient to cover
        all the material. (It was a whole day).

030   Should be a requirement for all employees. Also,
        implementation of these principles should be
        monitored.

031   Leave out the junk about saving time by having our
        secretary hold our calls, or block time off for
        us. The majority of us have no such buffer from
        real-time interruptions. Give us practical
        suggestions that would work at NAC.

039   It sounds good in theory, but difficult to put into
        practice.

041   Everyone should take it!

055   Some of the things taught would be valuable to
        implement, but NAC seems unwilling to do so.

What is the point of sending people to this training then?

056   Its hard to learn time management in an 8 hour course. The time-management section of Jack Parrish's supervisory development course was excellent.

057   Supplies for the Time Systems Organizer are a big hassle to get and are slow to get here after ordering.

069   I think everyone should be exposed to the Time Management Course.

085   Valuable, but not always practical in our situations. Usually assumes you can delegate work to those less busy than yourself. Not useful when all those you work with are as overloaded as yourself.

087   I use a software package called Top Priority. This is the best way I have found to increase my productivity.

098   More people should be exposed.

101   Everyone should be offered this course with an occasional review.

110   I do not practice everything I've learned and have slipped back into bad habits. Refresher (reenforcement) courses could help.

114   Use the knowledge and ideas gained.

128   It could be accelerated.

D. PART D - TECHNICAL COURSES

Q1 - Have you taken any other technical courses other than thru NTU, to include any college courses?

N = 147

RESPONSE	FREQUENCY	PERCENT
NO	50	34.5
YES	95	65.5
DID NOT ANSWER	2	

Q2 - What technical courses have you had that stand out in your mind as especially good and why?

RESPONDENT

003   Daisy training. It stands out because it was a
        hands on type of training with immediate
        feedback as to what was learned and its
        usefulness.

004   IMU, 3 day course. It was good.
        FLIR, 3 day course. It was good.

005   SQL Windows from LINC Systems of CONN. The
        instructor knew his "stuff". He was prepared.

006   Silicon Compiler Systems IC Design Course - a "real
        world" design was taken from concept to
        finished product and each step was clearly
        defined & well documented.

008   Timeline Software. This course took a hands-on
        approach and was relevant to the work I was
        doing at the time.

009   Economic Analysis.
        Corporate Planning.

010   Software classes where I am already using the
        product such Timeline, Lotus, etc.

011   Materials in Packaging & Processing (Technology
        Seminars Incorporated).
        Composite materials - (Technology Seminars INC.)

016   Aerospace Lighing Institute Basic Seminar -
        provided both a general overview and specifics
        of aircraft lighting.

Random Vibrations - an introduction to MIL-STD-810 (Terminology and Equipment).
ESD - proper handling of static-sensitive electronics components.

017   These were all taught at IUPUI and were of acceptable college level.

021   Introduction to Radar at George Washington University. Excellent instructor who made the understanding of radar principles a transition for those uneducated in the subject.

022   Analysis course taught by R.D. Middlebrook through Teslaco. Excellent instructor, applicable material.
Switching Regulator course taught by Abe Pressman. Good instructor, excellent material.

024   MIL-STD-1553 Data Bus - covered signal structure & content.
Fundamentals of GPS - covered signal structure (1 of 5 days).
Strapdown Navigation Systems & Kalman Filtering - could apply these.

025   ADA and Software Configuration Management - I was going to be involved with the information that the course was about.

027   Seminars given by Hewlett Packard.

028   Digital Avionics Systems: This course is directly related to my assigned project.

031   Daisy Simulation class; given at Daisy in California. The hands-on, small class size, enough equipment, concentrated time -- was great!

032   Operating analytical instruments and interpretations of results.

033   Statistics for Engineers - showed method for dealing with an inexact world.

035   Ergonomics - it was interesting and had some good applications.

036   Communication courses, and DEC software courses.

037   Special Projects class - it taught me how to use
        the Echo20 to classify work. Otherwise I
        wouldn't be able to do my work!

040   Industrial Psychology and Organizational
        Psychology, both of these deals with manageing
        people in organizations; they also explored TQM
        ideas before TQM was named TQM.

041   Radar.

045   Oracle training - I was able to apply these skills
        to my present job.

046   Technical courses at DEC Education Facilities.

047   CorVision -Basic, Advanced, Software Management-;
        VAX Rdb.

049   IUPUI Electroanalytical Chemistry: This course
        enhanced my theoretical understanding of
        electrochemistry.

051   Thermal and Vibration Analysis - Society of
        Materials Process Engineer Conferences.

052   Infrared Imagers was an excellent course and it
        gave me a good understanding on a subject I had
        very little knowledge.

053   Human Factor

054   Introduction to Mass Interpretation - better
        understanding of mass interpretation.
        Incos 50B/Incos 500 Data System Operation - better
        understanding of the operation of GC/MS
        systems.

055   Both courses I took to complete my MSEE were good.
        Both were job related. They were "linear
        Integrated Circuit Design" and an independent
        study which was related to a job I was on.

056   Haz Waste Handlers - hands on experience.

057   Statistics & Design of Experiments courses from
        Purdue (IHETS NETWORK) were good because the
        theories could be applied on the job.

058   It has been too long to remember.

059   All the courses with hands-on types of labs. It
       helped reenforce what was taught.

061   Virginia Power Electronics Conference - the designs
       and ideas presented are definitely the power
       electronic technology of the future. The
       presentations are thorough and detailed.

062   Environmental Stress Screening Theory - Very good
       complete and in-depth course consistent with my
       work at NAC. Also, Professional Engineer
       Review Course at IUPUI was also very good.

064   Fortran Computer Management.

065   VAX Training

068   GCD CADD - Management of IDS - Operations of IDS -
       Intro DOS - Fiber Optics.

069   MIL-STD-2000 Soldering Course - D/220 Machine shop
       tour.

071   Specific classes on software development. These
       classes provided tools which I needed to
       accomplish my tasks.

072   Acquisition Management course - It gave realism to
       tasks performed at NAC by understanding overall
       DOD acquisition process.

073   Computer Engineering Principles - course content
       excellent.

074   CAD CAM training - content strongly related to job.
       Technical Construction/Functions
       SPEC Preparation

078   X-Ray Defraction offered thru NAC by (ACS) American
       Chemical Society and Copanion Metalurgy.

079   Geometric Dimensioning & Tolerancy - without this
       class, it would be very difficult to interpret
       drawings.

080   Penn St. Underwater Acoustics.

082   MIL-STD-461/462 - Understanding of Power Supply
       Design -- both were very good overviews of

their respective topics. Practical
                    applications were stressed.

085   Statistical Analysis and Statistical Design of
              Experiments IUPUI - taught in practical, real
              world way. Less devotion to abstract theory -
              more on "how to" or "hands-on."

086   Design of Experiments - Statistics for Engineers -
              Applied Statistics - PC Related Courses.

087   Calculus II and III - they were good refresher
              since I don't use the math very often in my
              job. Enabled me to understand technical
              publications easier.

088   Purdue's Vibration, Mechanics of Material and
              Advanced Dynamics courses - all professors made
              an effort to include TV students and lectures
              were well prepared.

091   High Temperature Alloys - the instructor (Prof
              Radavich from Purdue) was very demanding and
              had high expectations for students. He was an
              excellent instructor.

095   The ANACOSTIA Logistics Course - the instructors
              are very experienced and sympathize with all
              the government red tape we have to go through
              in order to apply the lessons they teach.

097   Most CECOS Public Works Courses.

099   Design of Experiments - immediate ability to apply
              knowledge gained.

100   VPEC - hands on lab.
          Middlebrook - very thorough.

106   Digital Signal Processing - Sonar Systems
              Engineering - Airborne Radar - AYK-14 Computer
              -Underwater Sound Support Equipment.

112   Courses on Analytical Instruments - practical
              courses that provide some interaction with
              instruments or material.

114   Engineering related courses.

115   Digital Circuits Course from RCA - TEMPEST Control
              from NAVELECSECOM.

117   Digital Signal Processing offered good insight to
        new technology.

118   1553 Training - directly applicable to job, readily
        understood software management - great
        overview, lots of specifics to relate to.

120   I took an intro course to ADA Programming Language.
        That is the only technical course I took so I
        can't compare it to other technical courses.

122   ADA CSCI 320 taught at NAC.

123   Intro to Oracle - Oracle V6 Architecture.

126   Engineering Composite Materials - the instructor
        knew his stuff. It was well documented -
        practical applications.
        Superconductivity by Dr. Gursser (NRL) same
        reasons.

130   Have had a number of materials courses, which were
        excellent -- knowledgeable teachers, organized,
        presented well, etc.... Management course by
        Jack Parrish was excellent, due to his
        knowledge & experience at NAC.

132   BASIC & INTERMEDIATE AEC - learned how to function
        in my current job, by learning how to use
        CADDS.

134   UCLA Engineering and Management Courses - these
        courses have consistently provided a detailed
        and broad treatment of the particular topic and
        always have very knowledgeable and
        professionally accomplished instructors.

135   Design of Experiments - excellent instructor
        (George Box) - excellent presentation -
        excellent coverage of subject.

136   Computer courses - Pascal and Assemble - they were
        good languages to learn.

137   Modern Communications Systems (USC, CA.) - well
        prepared & presented. Advanced Radar Concepts
        (TSC at IUPUI) - instructors had extensive
        hands-on experience. Microwave Amplifier &
        Oscillator Design (San Diego, CA.) -
        experienced instructors.

140   Geometric Dimensioning & Tolerancy Materials - both
        were very important in terms of basic skills.

142   Geometric Dimensioning & Tolerancy - course was
        very well taught by an interested and concerned
        instructor. The material was very interesting.

143   Attended the National Computer Graphics Conference
        and went to many seminars at the conference,
        they were helpful in the technical information
        I obtained. Technical Orientation offered by
        NAC, good intro to NAC's business for new
        employees (engineers).

146   Sonar Signal Processing course at Penn State
        University - it was well organized and was
        taught by qualified professionals.
        GD & T from a professional association class here
        at NAC, taught by an ex-federal employee.

Q3 - What benefits did you see as a direct result of the
training?

RESPONDENT

003   It had direct and immediate application.

004   Helped me on my job, to understand the terms,
        design and how they operate.

006   Silicon compilation is now a design approach
        offered by our branch.

008   More proficient using Timeline.

009   Applied to job immediately.

010   Improved my time wasted trying to learn a new
        software.

011   Better understanding of my role at NAC.

016   Improved job capabilities at NAC.

019   Expand technological knowledge.

021   On the radar jobs I worked on it gave me a basis of
        understanding.

022   I was more clearly able to attack technical
       problems at work.

023   Better job performance.

024   I better understood the system I was working with.

025   I am now known as an expert of software
       configuration management.

027   Increases job performance.

028   A better understanding of the issues involved in
       the design of aircraft systems.

031   Understood what the system could do - or, better,
       what other people could do with the system. I
       didn't get to play with it after I got back to
       NAC. Didn't truly have a need though.

032   Qualified to operate instrument and also chief
       operator of two analytical instruments.

033   Able to deal with "real-world" numbers.

036   Increased understanding of technical environment
       used for job responsibilities.

037   Becoming really good at classifying work so people
       can come up to me and depend on me and visit
       Nordiv for 3 week or 3 month to understand
       their operations.

038   Degree looks good on resume - no meaning here at
       NAC.

040   I had an inert understanding of TQM and Deming
       before they were explored and embraced by NAC.

042   Better understanding on the job.

045   The Oracle Training provided skills and knowledge
       to help me do my job at NAC.

046   Obtained needed technical knowledge.

047   I use CorVision every day.

049   I have become a better chemical process
       troubleshooter.

051   Enhances technical skill - direct job related.

052   Nothing immediate. We have to wait and see if we
        will get the job from our sponsor.

053   Background

054   Provided me with a better understanding of the
        field of mass & spectrometry.

055   Both courses had direct application to my work.

056   Able to better respond to Haz Mat/WST incidents
        (spill response).

057   Better job knowledge.

059   Improved quality and speed of work done.

061   I am using these concepts in a power supply I am
        now designing.

062   Better understanding of my duties at NAC, and of
        the theory behind a big part of my job.

064   Helped in my performance.

065   Six months later I was allowed to work on the VAX
        system.

068   I used what was learned immediately in my designs
        often saving NAC a great deal of money in the
        process.

069   Provides hands-on experience and knowledge of where
        areas inside this plant one might be able to
        seek help or understand the process.

072   Greater familiarity with terms and with NAVAIR HQ
        related responsibilities.

073   A greater understanding of job and ease of making
        decisions concerning it.

074   Increased efficiency.

078   Benefitted greatly in electron plating chemistry
        and printed circuitry analysis here at NAC.

079   I was able to understand drawing symbology and was
        able to layout my own drawing such that they

could be understood and the parts could be
fabricated and inspected accurately.

080   I work with SONOBUOYS.

082   Increased knowledge in technical aspects of work
       related field.

085   Have gained capabilities which I did not have. Now
       can do a more accurate analysis of data and
       design more powerful experiments.

086   Very helpful in my early days and still useful.

087   Better self-esteem. I'm more confident.

088   I use some of the knowledge learned almost everyday
       in my work.

091   I was working on a program for the E-2C Hawkeye and
       the course gave me insight into problems I was
       having with plating the part.

095   I'm now an engineer that remembers logistics when
       solving engineering problems. In the long run
       it should result in customer satisfaction.

097   Knowing the Rules and NAVFAC community to best help
       NAC accomplish its goals.

099   Ability to measure accurately interactions between
       different effects and make sound decisions.

100   Understanding better my area of interest.

106   Better understanding of requirements for ASW
       systems. Understanding of contractors design
       of ASW systems.

112   I was able to go from non-understanding of a
       technique to use of the instrument,
       understanding of theory, and ability to
       understand the results.

114   I gained skills and knowledge needed to work in
       this engineering world.

115   Better understanding/new approaches.

120   It helped me understand the programming language
       used on my project.

122   I learned ADA.

123   Has been very useful in the performance of my job.
        Filling in holes that were missed while
        learning Oracle (SQL-Plus) myself.

126   Started in metal matrix composite materials.

130   Do my job better.

132   More efficient use of system.

134   A better overall view of the topics and usually a
        different viewpoint/approach from other
        attendees and/or instructors.

135   Technical skill.

136   None. I've not used them.

137   Marries theory with experience. Knowledge and
        concepts taught that were surely not covered in
        early college training.

140   I had a clearer understanding of documentation &
        design requirements.

142   Helped me to do my job with better understanding.

143   Found out some information which helped me w/my
        work duties.

146   I learned something worthwhile

Q4 - What technical courses have you had that stand out in
your mind as especially bad and why?

RESPONDENT

002   A recent software support activity course was
        poorly organized and the instructor, while
        knowledgeable, was not an effective teacher.

003   Most seminars of 4 days or less. Bad because none
        of the training covered any topic to any useful
        depth.

374

006   UNIX Training - the course notes came in a
                piecemeal fashion which were unsuitable for
                future reference and the professors' lectures
                were quiet scatterbrained in that there was no
                "flow" to the course material.

008   An SPC course. The instructor read directly from
                the book/hand-out and was very boring.

013   Microwave Principles - assumed student already knew
                microwave principles.

014   UHDL Programming - the course was too complex and
                I got signed up for the course and didn't even
                want to be.

015   Sometimes I've been nominated for courses that
                don't really pertain to my work, and other
                times, the course is not what I expect it to be
                because the title and description don't provide
                enough information. Examples: Electrostatic
                Discharge, and a connector seminar.

021   Some type of digital signal processing course. The
                instructor proudly announced at the end of the
                week we had received one and a half masters
                courses worth of material. Most of which was
                several feet over my head.

024   The technical writing and technical speaking
                classes that NAC brought in. We covered more
                material & did so more thoroughly in my high
                school english classes.

028   Specialized courses (advanced topics) given in a
                relative short period of time.

036   LOTUS 1-2-3, Intro courses. The courses in
                themselves were not bad, but were too basic.
                Time and expense could have been used for
                courses more useful. People should not just
                "fill billets" for courses they don't really
                need or won't use, this is wasteful and unfair
                to others who want valuable training.

040   They were profession related; poor approach to
                teaching. I won't go into the course names.

045   ADA Training - the instructor did not present the
                material for entry-level personnel. He had
                trouble relating the topic to novice

programmers. The training was not feasible at the time because 920 did not have an ADA compiler. The employee could not have hands-on experience with the software.

046   Dale Carnegie Type courses - useless for non-management, and rarely see any of the principles actually work in management, which is bad - gives a low opinion of management. Technical courses given by 3rd party vendors rather than the manufacturer of the equipment. These courses appear to be because 3rd parties get the "low bid" for the training and we get what we pay for. A non-technical example was the recent AIDS courses which were terrible.

065   Office Automation - the time that it was offered was poorly planned.

067   I took a correspondence course from the Public Works Training Facility entitled "Reading Blueprints". It focused more on the material found in specific blueprints (mechanical, electrical, etc) rather than standards in all blueprints. As it turns out, the material should have been split up into specific groups & then covered in depth instead of one very vague lesson.

069   Riveting - no hands on experience.

072   Any NAC sponsored course where the student only listens to video tapes w/out a live instructor.

073   Digital & Analog Filters - Instructor bad.

074   Computer Language classes - attempted to accomplish too much - sessions too intensive - results in most of what was taught & learned was quickly forgotten.

079   Reliability Course - extremely boring and did not impact my daily work.

080   Purdue IHETS - travel caused problems - courses weren't taped - instructors had bad attitudes.

085   A course over IHETS a few years ago on Time Management. Teacher taught in a monotone voice, poorly prepared graphics, very

disorganized. Got virtually nothing out of the course.

086   PC related courses when I could not use them for many months. (no problem with the course - just the timing).

088   One Purdue class - the professor had too much of an accent; which made it too difficult to understand over the TV.

091   Taguchi Methods for Statistical Analysis - the book was filled with errors and the instructors reminded me of a comedy duo.

094   MGS 621 - Ball State U. - teaching little used fundamentals and making the class a bore on top of it.

117   Technical presentations identified no new concepts and included no actual presentations.

130   Have experienced more poor courses over the video televised media. Course descriptions do not match reality of subject matter. Instructors are rather poor. No interaction with other class members, which is often how you learn the most.

137   Microwave/Millimeter Wave I.C.'s "UCLA Extension Course" did not cover much of the topic, only presented basic RF Theory. Taught by experienced people but course not well thought -out.

142   The video courses that I have taken at NAC were all extremely bad. The lack of an instructor makes the class boring and the presentation is too bland.

146   Configuration Management course - the topic was complex and difficult to understand, yet, they still only allow 5-days to learn, it should have been two weeks.

E. PART E - MANAGEMENT TRAINING COURSES

Q1 - Have you ever taken any Management Training courses other than TQM?

N = 147

RESPONSE	FREQUENCY	PERCENT
NO	76	52.1
YES	70	47.9
DID NOT ANSWER	1	

Q2 - What management courses have you had that stand out in your mind as especially good and why?

RESPONDENT

002   Basic Project Management - excellent instructor and course organization.

004   Management by Indianapolis University. Management skills by Jack.

008   Project Management - the course was a very practical course as far as the work I was doing at the time.

012   NAEI - (1) level of participation; (2) causal professions and academic level of courses.

013   Basic Project Management - Advanced Project Management - Configuration Management. All had above average instructors.

014   Navy Systems Acquisition Management - the instructor was excellent. He took a very boring subject and made it lively. The course included Program Planning and how NAC actually receives its money. There were also presentations by NAC employees that showed some of the things that NAC does that I didn't really know about.

015   Supervisory Institute at University of Indianapolis.

017   Program Management.

018   Supervisory Functions - Conflict Management - Delegation - Leadership Skills.

019   Project Management.

023   Executive Management - the information was
        presented well.

024   Deming was pretty good, it gave a big picture of
        what NAC had in mind to implement.

025   Project Management - the instructor was very good.

026   Supervisor Management

030   3 day course at University of Indianapolis.

039   The Supervisory Institute given by University of
        Indianapolis was excellent and I would
        recommend it. It was very well organized, good
        instructors, encouraged student participation,
        and addressed important managment issues.

040   Supervisory Institute. Explored many areas of
        management with governemnt and industry
        managers. Good instruction.

042   Courses by Dr. Cosster. Pointed out common sense
        ideas.

043   Managing in the 90's. This seminar provided a
        variety of managing areas and methods of
        handling the situations.

044   Basic Project Managment.

050   Management Skills covered a broad spectrum of
        management requirements.

052   Understanding behavior of employees and stress
        management.

056   Jack Parrish's Management Course - 1989 Ind Central
        Univ. & AMA Management 1983 Accident/Incident
        Investigation for OSH Managers.

057   Briggs Meyers & Leadership Training sponsored by
        the Gov't Accountants Association. They were
        straight forward and dealt w/everyday
        management situations.

060   Stress Management

063   Basic Project Management - I really learned a lot.
        The speaker/professor was excellent. The
        project (used in class) was related to NAC so
        had real value.

069   Management training at the University of
        Indianapolis.

070   Strategic Management - this very beneficial for use
        in the decision making process. This helped me
        to look at the overall process.

071   SPEA class on Conflict in the Workplace - it
        provided real life examples of typical conflict
        situations and we explored alternative
        solutions to these situations.

073   Dale Carnegie

075   Basic Managment?

077   Basic Project Management - this course deals with
        what we should be doing and how to do it. Team
        Building - shows how to get a team going.

082   Project Management (AMA) - instructor was motivated
        & knew his topic.

085   Dale Carnegie - best overall offering NAC has
        given. Provides positive methods for attitude
        control, public speaking, supervisor methods
        and organizational skills. It gives the
        opportunity to try out new skills in a positive
        helpful environment.

086   Supervisory training at UI (2 levels) - Listening
        Skills & Assertiveness Training.

090   Operations and Logistics Management - focused on
        customer satisfaction, quality improvement,
        cycle time reduction.

091   Dr. Deming - again, he was a good (sometimes
        obnoxious) instructor.

096   Women in Management - covered the pitfalls of women
        in management and how to avoid them. Stress
        Management for Women - how to avoid trying to
        become the "Super Woman".

098   ICC - first real awareness of management
        requirements.

099   Management Psychology? at Univ of Indianapolis. -
        Showed effective ways to motivate people.

105   I took a management course at U of I 4 or 5 years
        ago - it showed how to work together.

106   Project Management II - good for project
        planning/Navy systems planning & management.
        Understanding DON Matrix Management for First
        Line Supervisors.

107   Basic Supervisors class.

108   Project Management! - It gave me an analytical
        approach towards managing a project.

109   Managing Change - taught you how to get people
        through changing times. How to Supervise
        People - gave good ideas.

114   Seminar for new managers.

115   Indianapolis University Managment Training Series -
        provided working experiences, the golden rule.

117   Navy Systems Acquisition Management offered funding
        information not found elsewhere.

118   Congressional Workshop - how we can better relate
        to Congress, get our job done. Congress &
        Budget - Supervisory Institute - touches on
        lots of areas.

119   Engineer as a Manager - Battelle
        Basic Project Management

128   All of the PMC/PMA courses have been generally good
        and stimulating - the OCPM courses on "seminars
        for advancing managers" Planning courses are
        good.

129   Software Project Management - the course formalized
        management procedures that I had already been
        using.

130   Jack Parrish's Supervisory Development course

133	Project Management - it showed an organized and logical approach to managing your project so you could meet your deadlines.
136	Management for Engineers from SMU - the professor was very knowledgeable and open for a lot of student participation.
138	A management training seminar (3 days) taken at Univ. of Indianapolis. Performance Appraisal course at U. of Indianapolis.
139	Engineer as Manager - the topic was relevant to me, the material was good & the instructor held your interest.
140	Program Management - gave me a better understanding of the "big picture".
142	Engineer as Manager - instructor was interesting and made the material seem valuable.
145	Global Management - it reenforced the need for TQM.

Q3 - What benefits did you see as a direct result of the training?

RESPONDENT

002	Insight into project management - will use training later.
004	Modified my attitude. It helped in many ways.
008	I think I am a better Project Manager as a result of the course.
012	Broadened horizons.
013	Basic understanding of management principles.
014	It gave me background on how NAC gets its money and who the people outside of NAC are that have an interest in my program.
015	Learned ways of dealing with people, delagating, organizing.

017   Improved ability to plan/manage a program over its
        life.

018   I can anticipate an office situation. I can
        communicate my ideas with group support & buy-
        in.

020   Good practical examples.

023   Understanding of how to improve my skills.

025   Better understanding of project management.

026   I know more about supervising people.

030   I was able to handle a larger quantity of work as
        a supervisor. Complicated situations are
        resolved easier.

040   Several. Certain styles, skills, etc and a
        comparison to industry.

042   Changes in work habits were made when applicable.

043   On the job applications.

044   Using timelines; organizing the project.

056   Better understanding of my job & my supervisors -
        analyze health & safety incidents.

057   Better delegation & managerial skills.

059   Many seemed to be very hard to utilize considering
        how NAC forces you to do things.

060   I'm more relaxed and able to perform my job.

061   Good, broad viewpoint and an appreciation of
        viewpoints of other functions (accounting,
        purchasing, quality, manufacturing, etc.).

063   I found that I use the techniques learned in class
        (scheduling, etc) as a P.E.

069   It touches on a lot of different areas that are
        viewed from both sides (employee and manager).
        After the course, it makes me stop and think
        sometimes to see if what I wanted to get
        across, did I presented it the way I wanted it
        to.

070   Go into decision with more of an open mind.

073   Improved communications.

077   I was more effective in my work.

082   Helped in scheduling projects.

085   Promotion. Better relations with those I
        supervise. Ability to make polished
        presentations which I now make on a regular
        basis.

086   Helped in my supervision of my branch.

090   All my MBA courses were good - I.U. has an
        excellent MBA program.

091   I was able to obtain a long-term view of where
        management at NAC (& America) needs to go.

096   A better understanding of how to try to get the
        people working for you to attain their
        potential.

097   Better able to manage effectively.

098   It was formal - NAC supr. received the same trng.

099   Communications.

106   Benefits are seen when planning projects and
        writing proposals.

107   Increased knowledge of need for communications.

108   I was better able to plan my work.

114   Good insight and training in the problems I would
        see later.

115   Promotion. Added duties.

119   Allows me to apply basic management tools to
        everyday project.

128   It helps keep me challenged, motivated, it helps me
        stay more aware, exercise my mind and enhance
        my value (in my opinion) to NAC.

129   Better project planning through the use of
       formalized procudures.

130   Better supervisor. Often use notes & course text.

133   None. I was'nt managing a project then & I'm still
       not.

136   I am learning what it takes to become a good and
       effective manager.

138   Made performance appraisals easier to conduct.

139   I have gotten better at delegating assignments
       which frees up time to do other things that
       really need to be done.

140   The training helped me see the project as a whole
       and helped me to better work as a team member.

145   It has opened my mind to different ideas and
       approaches so I do not lock into one way of
       doing things.

Q4 - What management courses have you had that stand out
in your mind as especially bad and why?

RESPONDENT

006   Forgot the name. Only theoretical management cases
       were presented & the application of course
       principles was not readily apparent.
       Course given at the University of Indianapolis -
       handbook variety given by novices and
       incompetence.

018   Corporate Politics - no text, no class agenda. But
       now I can butter my bread.

024   Timeline - it turned out to be a step-by-step walk
       through a software manual.

050   Management into the 90's -- resolving conflicts
       portion approached the problem in a poor way.

098   Kelly Trng - We were there 4 hrs whether it was
       needed or not. But I still thought it was
       excellent.

114   Targeted Management System - I had no faith in the
          instructor.

117   Basic Project Management should have been offered
          before I was a project engineer. I had already
          worked through most of the information
          provided.

128   Some of the D/700 "targeted management" courses
          were poor. Some were too simple, slow moving,
          not challenging, boring, of little real value
          & a waste of time.

130   IUPUI courses are generally poor. Course content
          is too removed from real life. Instructors do
          to come from industry, but from Academia.

136   MB540 - Industrial Psychology

F. PART F - OTHER TRAINING COURSES NOT PREVIOUSLY COVERED

Q1 - Have you taken any "other" training course not previously mentioned?

N = 147

RESPONSE	FREQUENCY	PERCENT
NO	72	52.2
YES	66	47.8
DID NOT ANSWER	9	

Q2 - What other courses have you had that stand out in your mind as especially good and why?

RESPONDENT

004   Reliability related course because they helped in the job.

007   No courses were especially good. They all seemed adequate to the needs they were trying to address.

008   Technical Writing - very helpful with all the writing we do at NAC. From some of the writing I've seen, more people should take the course.

009   Dale Carnege.

020   Technical courses relating to project functions, e.g. computer programming, antenna theory.

022   Unitrode Power Supply Seminar - very useful material, good instructors. This seminar directly helps us advance the technology of what we do.

024   Conferences related to my field are the most useful to me because I can discuss the questions I have with the presentors. The conferences are specific enough to address what I want to learn about.

032   Industrial Hygiene Chemistry at IU Safety School.

033   CPR - good instructors.

035   CPR - great class! Everyone should take it. Interesting and useful. Microprocessor

Programming & Troubleshooting - "hands-on" work, related to job, enjoyable. Microwave Measurements - job related, practical.

037   Learning the OA System.

042   Dale Carnegie.

044   Solder Training - MIL-STD 2000.

047   COTR - good instructor.

048   Vendor sponsored course for equipment used at NAC.

051   SAMPE Sponsored Conference - SME composite materials conferences.

053   EMP/EMI - comprehensive.

055   IEEE sponsored Applied Power Electronics conference. Unitrode Corp. Power Supply Design Seminar. Both offered latest info on power electronics design.

056   Principles of Heat Treating

062   Technical writing and technical communication were specially good and helpful.

063   Stress Management for Working Women. Dealing with Difficult People.

064   Memory Training/Development.

065   VAX - HONEYWELL - Systems ID - DCL

067   Computervisions CADD Training - I was not familiar with the CV System and 2 weeks covered just about everything I will ever need to know.

069   The English Course thru mail correspondence.

070   MBA related - finance, economics, research, accounting. These are all important for the career path that I wish to pursue.

078   SPC (Statistical Process Control) was very good in helping to control the various process of activity for scientific control and predictability.

079   Technical Presentations (more a communication class
        than technical) - this class helped me
        understand How to prepare for presentations and
        improved my presentation delivery.

081   I had a class/seminar on parallel distributed
        processing which while not relevant to my job
        was nevertheless very interesting.

083   The basic Corvision course. The teacher was
        excellent and the labs were well thought out
        (easy to follow).

084   All technical courses related to my job.

085   Practical Command of English Correspondence course
        was useful. Excellent printed examples.

086   Information Technology seminar - Knowledge Ware
        Training - Team Building.

087   Acoustic seminars by Bruel & Kjaer (B&K). They
        required homework to be done outside of class.
        That helped the learning process.

088   The Geometric Dimensioning & Tolerancing course by
        George Praitt taught at NAC - The Technical
        Writing course at NAC was a good course.

089   GPS course - Kalman Filtering course - - these were
        very relevant to what I was doing at NAC.

090   EXCEL Training - was able to learn in 1 day.

092   Technical courses that are specific to my job.

103   I've had several training courses that related
        specifically to my job responsibilities.

106   Aircraft Modification - good for sumitting ECP's &
        OSIP's.

108   COTR - Electronic Packaging - Vibration - EMI

109   Career Development for Women - made you take a look
        at your goals. Managing Career & Home - gave
        great ideas on how to do this.

110   How Congress Works - very helpful just to
        understand how our Government works, since I
        work for it.

124   Technical courses for continuing education rather
       than college courses. Very practical and
       applicable to job. Much more so than my
       experience w/college courses.

126   Retirement - super job!

128   The 5 day Advanced Electronic Assembly and Surface
       Mount Technology course was particularly
       interesting to me.

131   Daisey Training - Microprocessor Troubleshooting: -
       good instructors & subjects were work related.

132   Practical English and the Command of Words --
       extremely beneficial reference material.

133   GD & T - well taught & applied to my job.
       DBASE III - well taught & applied to my job.
       BRAVO - applied to my job, but teaching could be
       improved.
       Shop Tour - well taught & applied to my job.

135   Mandatory classes - no real comment on whether good
       or bad. I just had to attend.

136   Dale Carnigie's Effective Speaking & Human
       Relations course.

137   "Microwave Measurement & Techniques" - Adams
       Microwave Consulting, Inc. -- "Surface-Mount
       Technology" Technology seminars. -- "Advanced
       Radar Concepts" - TOC.

138   A week long course at UCLA on Flexible
       Manufacturing. Project Management.

141   Instrumentation courses have helped me to better
       understand trouble shooting and the operation
       of lab instruments.

142   Statistical Process Control. Material was
       interesting and job related.

143   D/200 Shop Tour - very good in show what we can do
       here at NAC in manufacturing. Presentation
       class was good in developing further my
       speaking abilities & helped me in developing my
       teaching methods.

147   I.V. Masters in Public Affairs.   Informatio
        Engineering, Arthur Young.   Information
        Engineering, KnowledgeWare.

        Q3 - What benefits did you see as a direct result of the
training?

<u>RESPONDENT</u>

004   Make the job easier.

007   No benefits other than a feeling of general well-
        being and competence.

008   Improved writing skills.

009   Held w/people in Branch I work with.

020   Job related.

021   Making meetings work & public speaking have helped
        me in group situations and concentrating the
        efforts of myself and others.

022   Helps apply new technology in our work.

024   Exposure to new technologies and new systems in the
        defense world and public world.

032   Qualified to help Safety Dept and be safety
        liaison/chemical hygiene officer.

033   Prepared for emergencies.

035   Learned alot about areas in which my job revolves
        around. Were helpful in the everyday duties of
        my job.

037   Quicker use of the machine & better understanding.

042   Increased awareness of what is necessary in
        speaking about a subject. Increased
        confidence.

044   The demands of the soldering process - the heart of
        electronic manufacturing.

047   Never use it.

048   Immediate use and understanding of equipment.

051   Learned trends of technology, keep up with and
        availability with today technology.

053   Application to design effort.

055   Helped in building a better product. Good source
        of info.

056   Better enabled me to accomplish my job.

062   Better communication between engineers and
        management and I.

063   I learned to deal with stress. I can now
        effectively handle others.

064   Personal.

065   Flexibility on projects.

067   Efficiency - speed. Directly related to my work
        output.

069   Improve vocabularies and proper usage of words,
        phrases, and sentence structures.

078   Improve results and control in managing my
        laboratory.

079   I was able to present material in a manor such that
        the information was more clear and it helped
        boost my confidence.

081   None immediately, though it is useful to be aware
        of emerging technologies.

083   I was able to jump right in using the software on
        my job.

084   Increased knowledge.

085   Better able to choose the right word for an
        occasion. Technical reports require fewer
        drafts.

086   Very helpful in understanding what is needed to
        succeed in the future, and tools required.

087   Increased technical understanding.

088   I learned how to correctly dimension and tolerance
        parts.

089   A good contributor to my assignment in GPS.

090   Able to communicate effectively with fellow workers
        using EXCEL.

103   All courses I have taken resulted in increased
        awareness of how to better apply skills I have
        learned.

106   Provided good P.O.C. for the OSIP & ECP routes at
        NAVAIR.

108   These courses provided a basic definition as to how
        I should approach my job.

109   More focused on a direction to go.

124   Learned more about how to do job & how to do it
        better.

128   Increased knowledge and awareness that I then
        expanded to others.

131   Learned more NAC processes; helped on my
        manufacturing job both in design and
        implementation.

132   Knowledge of an excellent reference when needing or
        questioning grammar rules.

133   Enabled me to do my job more efficiently.

136   Improve my public speaking capabilities, learn how
        to deal w/relationships & reduce stress.

138   Applied directly to project that I was working on.
        Provided some useful tools for project
        managmement.

141   I feel a little more confident in my job skills.

143   I was better able to handle teaching the courses I
        have started to teach here at NAC.

147   Better job performance. Knowledge of how to do my
        job.

Q4 - What other courses have you had that stand out in your mind as especially bad and why?

RESPONDENT

016   Two-day teambuilding at Bradford Woods - the branch
        was split into two groups the entire time
        (practically). Branch members were forced to
        attend by "Top Deck" management. Outdoor
        activities were sometimes impossible to
        complete, open to constant renegotiation of
        rules (not mentioned beforehand), and resulted
        in workman's compensation claim by at least one
        member for back injuries from a three foot
        drop.

020   Non-job related/you forget information if you don't
        use it.

035   I have been in many training classes where I got
        nothing out of them and they were just a waste
        of time - most of the time the class was
        misrepresented in the synopsis of what class is
        going to be about.

062   Some technical courses lasting less than one day
        which makes it hard to learn anything in such
        a short period of time.

067   NARDAC's SPECSINTACT course - they spent 2 days
        going step by step through all the menu choices
        of this software. I learned as much on my own
        using the on-line help and a little common
        sense.

074   Technical and oral presentations - too elementary.

083   Advanced VMS concepts taught by Digital Corp. The
        teacher was not very knowledgeable with the
        material and was not very helpful during the
        labs.

087   ILS - did'nt understand much of it. Too many
        acronyms.

108   Applicon-Bravo -- too lengthy, a big waste of time.
        Four weeks of training and I've never used the
        machine for anything!

124   Can't think of any especially bad courses other
        than possibly some mandatory courses.

128   Any course that underestimates the average
        intelligence level of the students & moves too
        slowly is poor!

131   Formal Statistics - video outdated/methods
        outdated.

133   How to do Business w D/200 - not organized tour of
        the EWB SECTION - poorly organized.

146   Course on Spot-Weilding and Microprocessor
        Engineering and Electronics packaging course;
        all three were sponsored by NAC and taught by
        profit hungry professional associates that
        could'nt relate the topic to anyone but those
        who are intimately familiar with the subject.

147   Digital Equipment Corp. for DCCF.

G. PART G - OVERALL EVALUATION OF NAC'S TRAINING PROGRAM

Q1 - Overall, how would you rate NAC's training program?
N = 147

RESPONSE	FREQUENCY	PERCENT
UNSAT	3	2.1
BELOW AVG	17	11.8
AVERAGE	78	54.2
ABOVE AVG	43	29.9
EXCELLENT	3	2.1
DID NOT ANSWER	3	

Q2 - What would be your "wish list" for courses offered through NAC? PLEASE SPECIFY WHAT COURSES, IN ANY SUBJECT AREA, THAT YOU WOULD BE INTERESTED IN TAKING IF THEY WERE OFFERED.

RESPONDENT

001   Anything concerning computers, digital design, communications, or optics that is very current.

002   Software Engineering.

003   I've given up on NAC-Sponsored training.

004   More job related courses; technical. Only persons selected to become supervisors should be allowed to take management courses, not like now. More people to complete their graduate degrees & then give them a step increase.

006   Microprocessor Interfacing; 1553 Controller Bus Use; VHDL Software Training; IC Design; C-Programming; Testability Architectures (P1149.1); Electronic Systems Engineering.

007   Chemistry - advanced organic & laboratory & use of instruments. Engineering General. Management training for non-supervisory people.

009   Management training. Corporate Policy. Government Policy. TQM. Deming.

010   Self-improvement such as memory & listening courses. As well as any course which helps with communication skills.

011   More classes on composite materials & processing,
       managerial classes, time organization, project
       organization.

012   Humanities.

013   War games.

014   Contract courses for technical types. More
       program/project management courses.

015   Statistical Process Control. Composite materials.

016   Computer courses - especially C. Reliability for
       MIL-STD-781.

020   RF Theory/Receiver/Transmitter Design.

021   Mil Standards in Digital/Analog design, should be
       required of all engineers. MIL Standards in
       software design should be required for all
       software personnel. These courses should be
       given to develop a NAC standard and include the
       elements of documentation, logistics,
       provisioning, and MIL-STD post/test
       requirements.

022   Surface mount - a course that discusses what parts
       are available, what will become available soon.
       High frequency power supplies - discussing
       technical "how-to", not a cursory examination
       of the topic.

023   Business (Finance).

025   Software management course.

026   Management courses.

028   Graduate courses on Computer Science. Classes on
       the different Governement agencies. Aviation
       classes (flying, navigation).

031   More general training in different, broad areas -
       I'd like to get a taste of other subjects,
       without getting buried in detail. Later, if I
       decide I like the subject, I'll take the more
       detailed courses. Better put, I'd like "try it
       to see if I like it" type courses.

032   Project Management.

033   CAD for mechanical engineers.

034   Computer Architecture. Avionics Integration.
       Video Processing.

035   C Programming - also C++.

036   Supervisory training available to people who are
       not officially "supervisors" but whose
       responsibilities include supervision and people
       management. Project Leadership training for
       non-supervisory employees.

037   Math & English.

040   Washington arena.

041   Electronic warfare.

043   AMA & NAEI courses.

044   More courses on the ins & outs of the Government
       procurement processes. More training sessions
       about the various organizations and divisions
       within NAC and how they interface - excellent
       for new hires.

045   Technical Presentation, technical writing, and
       Oracle courses.

046   Not for me, but for most of NAC - a computer
       literacy course is very much needed for NAC
       employees. Bring DEC computer courses on site;
       taught by DEC, not 3rd parties.

047   Technical college classes at night (training
       center).

048   Courses leading to accredited MBA.

049   Need technical training courses for the "non-
       degreed" technical staff/worker. Need overview
       technical courses for "degreed" technical
       staff/workers working outside the discipline in
       which they have degrees.

051   Advanced Geometric Dimensions & Tolerances.

052   I would like to see more computer science related
       courses.

053   Any course in statistics other than TQM
        application.

057   Legal & Social foundations of Management - MGMT 630
        (Purdue) --- Behavior in Organizations - OBHR
        681 (Purdue) --- Industrial Psychology -
        (Purdue) --- Labor Relations - (Purdue).

060   Fluid Dynamics - Thermo Dynamics - EMI prevention -
        EE for non-EE's - Looking for Electronics -
        Design for Manufacturing.

062   More electrical engineering courses, electronics
        communications, etc, would be very helpful in
        my current job. Also would like to get
        involved in managerial courses which are
        currently unavailable to me (only to
        supervisors!!)

063   Effective negotiation techniques - I think we, at
        NAC, have to do a lot of negotiations here but
        many of us don't have the skills to do it
        effectively.

064   Training in usage of certain comp programs. Right
        now have to learn by trail & error.

065   Open

068   Management - Deming implementation, Business
        Strategies, Business Plans
        Technical - NEC Code, Fire Code, Security Systems,
        Fiber Optics Networks, Elect Eng Design for
        Facilities, Electrical Engineering, Computer
        Science, CADD Systems

069   Communication Skills - how to deal with different
        personalities, how to improve and open the
        communication lines so that everyone is on the
        same wavelength.
        Listening Skills.

070   Finance - Management (NAC & General Skills) -
        Accounting - Personal Development - Stress
        Management

071   1 - NAC Management/Corporate Philosophy
        2 - NAC/Navy Budgeting Process
        3 - NAC Cost Accounting Methodology

073   Digital Signal Processing

More computer hardware/software classes.

076   1. PC - DOS (Disk Operating System)
        2. PC - Software (Wordperfect, Spreadsheets, etc)

078   Computer program training for every employee in the
        plant.

079   I would like to see a structured outline of what
        courses would be required in order to be
        considered for a branch head position. In
        other words, a road map of courses or a
        structured management program for
        engineers/scientists to prepare them for branch
        head level positions.

080   Any graduate level EE courses taught in person at
        NAC would be great.

082   Any analog circuit design/analysis course.
        Any Power Supply design/analysis course.

083   More courses on new software which is put to use at
        NAC. Usually you have to learn it on the job.
        This causes a lot of time to be wasted until
        you get yourself up to speed.

085   How a project comes from NAVAIR and flows through
        NAC. How the directors decide the direction
        NAC is going. What technologies are presently
        used at NAC and what new technologies we will
        be pursuing. Any courses involving hazardous
        waste minimization.

087   Acoustic classes. Electro-Acoustic (microphone,
        earphone design). More on-site math courses.

088   A better graduate program so more people can take
        graduate classes full time for a semester, and
        reduce the number of graduate hours to 9 which
        most schools recommend.

091   Courses that develop the employee such as Zig
        Ziglar's Born To Win Course.

092   Time Management. Technical Courses.

093   Job related courses: identify the tasks and train
        employees to perform those tasks effectively.

095   Engineering briefs on new technologies. How to
        arrive at a win-win situation when dealing with
        NAVAIR. Project Management Basics.

096   More management courses - personnel management as
        well as time management, stress management.
        Inter-departmental training - such as the current
        "how to do business with D/200", i.e., D/600
        etc.

099   Courses I wish to take are available through the
        Purdue TV network.

101   1. Communication design & measurement practices.
        2. Microprocessor programming.

103   Find a happy medium between the very basic classes
        that are offered for those w/o a degree, & the
        very technically oriented classes for
        engineers.

104   Linear Amplifiers. Operational AMPS. Signals &
        Noise in Receivers. How to Design Transmitters
        (YOU ASKED!)

105   More technical courses that would help in designing
        military type subjects and in general.

106   Program Management I and II DSMC (Defense System
        Management College)

108   EMI - Radar Signature - Logistics - Materials -
        Quality - Project Management - Reliability -
        COTR - Electronic Packaging.

110   More of the same in management training, anything
        in building construction.

111   Latest developments in Thin Film Hybrids. Future
        direction of micro-electronics.

112   Environmental Forensics Analysis. Legal issues -
        scientific impact. Project Management.

116   Writing Communication. Supervision. Electronics.

117   Dale Carnegie - it isn't offered enough.
        Management classes in motivation, basic
        management, time management.

118   MBA courses with how NAC/NAVY does business
        emphasis.

120   Advanced ADA Programming, Intro to VAX/VMS
        operating systems, Advanced VAX/VMS operating
        system, DEC Command Language, Courses requred
        to convert computer scientists into computer
        engineers.

121   Real-Time software systems. Multitasking computer
        systems.

124   Civil Engineering. Construction. Leadership for
        non-supervisors. Project Management (Design
        Management).

127   Public works courses. Since we all depend on these
        so much. Facility Planning. Facility Project
        Management. Would like very much to get a
        masters in Facility Planning but no courses
        available locally.

128   Management of Mid-Life Career Peaking.

131   Microprocessor Design. Accounting 101.

133   More computer training.

134   I think more courses/tours regarding NAC's
        capabilities are needed for the engineers,
        particularly project engineers or anyone
        interfacing with sponsors in Washington, D.C.!!
        I am also interested in management development
        courses as well as "personal
        development/leadership courses, such as Dale
        Carnegie courses.

136   More management courses for other existing
        management and those currently in management
        development programs.

138   Engineering - program management. Detailed
        training for each branch (branch specific) on
        forms - what forms are used, why, how.

139   More computer training - especially fundamental
        training for VAX, since it is the new CCF.

140   Logistics courses offered on site during business
        hours more often, e.g. ILS courses.

141   Maybe some refresher courses for computer
          applications (ex: DBASE course, other data base
          programs)

142   Advanced Statistics

143   Geometric Dimensioning & Tolerancy (was cancelled
          for FY 91) and Time Systems Organizer.

Q3 - What recommendations would you make to improve the
way training is done at NAC?

RESPONDENT

003   Hire qualified individuals to manage training for
          scientists and engineers.

004   More courses, give a little time off to attend
          those courses.

005   If classes are given off-station, such as IUPUI, it
          should not be necessary to take leave to
          register, take care of billing, etc. If NAC is
          willing to pay for the course, they should be
          willing to pay for what it takes to get into
          the course.

006   1. Have the bloody manuals/books before the class
          begins.
       2. Make some work time available for college class
          study (perhaps a study room).
       3. Hold no training on-site; supervisors "snag"
          students during most on-site training!

007   Aggressive promotion of training opportunities to
          employees. More material on training
          opportunities to employees. Encourage
          supervisors to promote training. More college
          level advanced courses in chemistry and
          engineering made available on site.
          Generous funding of TDY to technical training
          courses offered by professional organizations
          & private companies.

008   Need to offer more hands-on training that is
         relevant to the job you are doing now or will
         be doing in the near future.

009   It should all be listed in O.A. system & accessible
         by all NAC employees & left up to supervisors
         if employee may attend.

011   Since I have only been here a year, I have not had
         much opportunity to experience much of the
         training that is offered. One recommendation
         would be to notify employees what is available.
         I, truthfully, am not sure what is available.
         I would sign up more often for classes if I
         knew what is out there.

012   Lots of NAC courses are driven by fads - for
         instance Deming & TQM. Most people found these
         to please the boss & to fill the quotas.

013   If a course is popular, offer it multiple times so
         that all interested personnel may attend.
         Concentrate on getting applicable courses for
         NAC employees. Many courses do not offer
         anything that could benefit the employee at
         NAC. Offer courses on how to get things done
         in NAC's system.

014   Increase the training budget. Offer more program
         type courses as opposed to technical courses.
         Ensure that all training announcements go to
         all personnel. In some branches, the
         announcement goes from the training folks to
         the training contact in the division to the
         branch manager. And the branch manager may
         decide that he thinks no one in his branch is
         interested in the course and not pass it on to
         the branch. And some personnel have missed
         out on courses because of this.

015   In the past, the training department did not seem
         very well organized. It was not uncommon to
         have paperwork lost by them, and employees
         would have to write things up again.

017   Standardize the means that upcoming courses are
         advertized. Within my division, the mean
         ranges from a branch manager passing info on to
         individuals as he desires appropriate to
         another branch manager that passes all
         announcements on to all employees.

018   Get people on staff that understand education.
       Make that division lean and mean.

020   Better notification of available training.

021   Notify person who was not selected. If enough
       interest indicates they will be apart of a
       future class. This would create the appearance
       that NAC does care. No notification at all
       leads to the "I won't be selected, why try"
       attitude.

022   The greatest problem for me is that few courses
       exist anywhere that are truly useful for my
       work. Rather than attempt to provide shallow
       courses on this technical material, NAC should
       encourage us to attend these few useful courses
       and few useful conferences whenever they are
       available. This likely involves travel, and
       absence from the job for a week at a time, but
       it would be much more beneficial than many 1/2
       day courses on diverse topics.

024   I always get the impression that training is not
       organized - the reason being that I never now
       about roster selection until I have already
       made other plans (on-site courses), so I always
       have to miss the class.

025   Let us take more than 1 course a year if it relates
       to our work.

027   If there are more people that want to take a
       training course than is alotted, increase the
       course size to meet the demand.

029   Post more info on ALL courses or training offered.

030   Provide employees with an accurate (as much as we
       know) listing of what courses will be offered,
       when and cost for each fiscal year. Currently,
       planning employees career development, with
       limited budgets, is impossible!!!!!!!

032   Watch how training/conferences are scheduled during
       the last two months of any FY because travel
       money is usually spent by then.

033   Better descriptions of courses offered.

035   When ranking people to take the course, compare the
       course subject to the person's job description.
       Don't put a bunch of people in a course that
       isn't designed for them.

036   Increase budget allowance for training. Seek out
       training and make selections based on the most
       useful and desirable courses and cut out the
       rinky-dink classes.

037   Identify these are available when you begin work or
       post a copy somewhere. (typed as written) I
       would like get in touch with someone about
       other course which relate to my department.

038   Training dollars can't be the method of "balancing
       the budget" - If they are serious about a well
       trained workforce, have IDPs approved,
       budgeted for & class available to meet them.
       Don't let job problems pull someone from class
       "as they are the only one to solve it" (or
       others think they are). If a class is only
       offered at the time the employee needs it in
       Florida, don't threaten to turn down the
       request & force them to take it 3 months later
       in Chicago because its cheaper. Trust the
       employee to know his job & the training needed.

039   Maybe sponsor more on-site courses offered by
       technical associations to which NAC employees
       belong. Also, college courses offered on-site
       (other than basic courses such as English or
       Algebra).

040   A list of courses that will be offered 6 months to
       1 year ahead of time.

041   Give us more control over the courses we wish to
       take.

043   For those of us who travel, it is critical to get
       the training information. Perhaps a master
       list (continually updated) could be kept of
       those employees who are interested in training,
       but are not always available for announcements.
       OA could be used to send out this information.
       D/920 is good about relaying training info on
       OA.

044   The rhetoric used to promote training at NAC does
       not MATCH the monetary commitment to it.   If

the funds are low don't promote it so much and vise-versa. Increase funding! Be more selective of the trainers and consultants that NAC hires to train us.

045   Training needs to be available to employees that have requested a need. When a course is in demand everyone should have the opportunity to attend the course.

047   Experience has to be equally weighed with training.

049   Statistical/experimental design training should be given on a regular basis to most engineers and scientists. Computer software training needs of each technical person should be reviewed 3 or 4 times yearly. Some technical people at NAC should be encouraged to teach on-site courses to NAC employees.

050   I have been given as many opportunities as I can handle. I have had good response from the NAC training department.

051   Training site is just as important as the course itself. Hope NAC training representatives keep this in mind.

053   Set up a standard mandatory set of courses for new-hire engineers.

055   There are a lot of courses at NAC, especially personal development courses, which should be taken on employees time and cost. Need much greater flexibility in allowing employees to take private/organization sponsored courses.

056   A yearly projection & 5 year projection. These opportunities are well delineated in the MDP MEP & SDP as well as the MPA program (Master of Public Affairs). The opportunities just started too late in my tenure at NAC. There is NO reason why a young person with desire & ability cannot accomplish their dream while employed at NAC. The programs are there. It's just a matter of someone being inquisitive enough to ask! If a person has a mentor, it is a definite help.

057   Improve the organization of the video room &
           maintain the video equipment. Increase the
           size of the video facility.

058   Make training people and the type of training
           accessible to the general public i.e., a list
           on OA of available training.

059   Provide better and more information about courses
           that are available.

060   Give us a budget for training at the beginning of
           the year and then leave it alone. Every year,
           after the IDPs have been submitted, and plans
           have been made, the money gets yanked.
       Training is how you maintain the quality of your
           employees. I honestly don't believe management
           wants to support the TQM they preach. Training
           & Education is a major part of it. But every
           year, it is the first area to be eliminated
           when money gets a little tight.
       I highly resent the attitude that if they train an
           employee, he will just leave sooner. The way
           I feel about it, if they can't commit
           themselves to invest in their most valuable
           asset, I don't want to work here. Since they
           have proven that they won't commit, I am going
           to look for another job soon. I'm one of many
           employees who is just tired of working at NAC.
           BYE

061   Not all, but some NAC courses are too full of
           generalities, slogans and buzz words. These
           courses should be revised to contain more
           substance and less fluff.

062   Better dissimination of available training to the
           engineers, including OA messages, mailings and
           posting of courses available to us.

063   I don't think everyone has a chance to get training
           simply because they don't see the
           announcements. There has to be a better way of
           distributing!

065   Allow the training opportunities to be fair.

067   All formal training should be done in a setting
           other than NAC. This allows for a less formal,
           less tense atmospehre (easy to learn).   It

lets the student put their job out of their
mind and allows new ideas in.

068   Execute a media campaign to show what is available,
open training to more personnel, provide career
counseling to people.

069   More training needs to be offered like home study
courses so that each individual can perform the
training at his/her own pace.

070   1. Make access to training easier.
         2. "Advertise" types of training being offered.
         3. Ease restrictions on job-relatedness.
         4. Eliminate certain unnecessary training classes.

071   Make it more accessible to individuals and reduce
the amount of "wholesale" department or
division wide training.

072   Training should track closely w/current or
anticipated responsibilities. Also the
employer should be able to recognize immediate
compensation for participating in training.
The most valued and performed types of classes
are those where the format calls for both
lecture and student participation, including
verbally & via class exercises. Also when the
subject matter relates directly to the goals
and functions of the Navy (specifically NAC).
I feel fortunate to work for a branch manager
who supports training. I personally know other
NAC employees with the same job
responsibilities who do not get the training I
have received.

073   Time frames for frequently given classes should be
listed. People should be notified they were
not selected and why.

074   Provide courses which deal with what procedures and
forms should be followed & prepared when
dealing with organizations such as supply,
public works, and other service organizations.
This is always a nebulous area and a lack of
consistency of input & output exists with both
user and service organizations.

076   Collect information from IDPs and relate it to the
training program.

077   Maintain a network data base that people can access
        with their PC of courses past, present and
        future so that people will have a direct way to
        get the info they need.

078   Random training during the workday of one - two
        hrs. (not too long or all day)

079   I would like to see a catalogue of courses that
        would be available on OA of what upcoming
        courses will be held in the future as opposed
        to having class training notifications being
        forwarded to one as they become available. It
        would be much more efficient if I could look
        through a catalog of available courses on a
        weekly basis than to have these forwarded to me
        on an individual basis in the form of OA
        messages.

080   I have found NTU's broad selection of courses and
        format geared toward working engineers has
        renewed my interest in a M.S. But my branch
        managers complain about costs. It would be
        nice if they realized that a semester with
        tests yields more than a seminar with donuts.

081   I am aware that NAC offers courses and occasionally
        am asked if I would be interested, but either
        they are not relevant or are about something
        that I could more easily learn in a less
        painful way; say, by asking someone in the
        branch. All of which is merely to say that I
        like the current setup and am not eager to take
        a lot of classes.

084   More off-station training should be made available
        for the employees.

085   A bulletin board on the OA system.
        - show courses offered in the past 12 mo
        - those courses planned in next 12 mo
        - sample evaluations of past courses
        - budgetary costs associated with each
    A few of the frills would be nice such as rolls and
        coffee/tea for courses at the Marriott or
        Holiday Inn.

086   More O.J.T. Better training of all NAC operations.
        Many do not know what the different functions
        of NAC are.

087   Require successful passing of all training via
        tests. Not just on college university courses.

088   Try to have an official list of recommended courses
        for specific job titles and have more of those
        on station.

090   Continue CPR training. After people earn degrees,
        NAC should use these people (give them an
        opportunity to apply what they learn). In this
        way, training is indirectly applied to the
        performance appraisal. NAC loses too many good
        people because they train them and then leave
        them in their current job assignment. NAC
        should seek out opportunities and reassign
        these people. Otherwise people trained feel
        like they have wasted their time and look to
        other companies to appreciate their new skills
        and knowledge. Many times NAC trains the
        people possessing great skills and knowledge,
        promotes the rum-dums or brown-noses, and then
        lose the people they train. NAC has great
        training. They need to keep their people!

091   I would like to participate in and see more of
        internal training at NAC. I like people and I
        like to teach. I enjoyed teaching a course
        here at NAC on the D. O. D. Hazard
        Communication Program. I did teach it as well
        as any outside vendor would have. I was
        accepted by the employees who knew me
        and my background. There are many capable,
        qualified, willing employees here who can
        conduct technical training, as well as or
        better than outside contractors. I have felt
        a hesitance on the part of NAC management to
        allow this type of training at NAC.

093   Use Quality Functional Deployment (QFD) to identify
        the needs and wants of each area and then offer
        training to perform better on the job.

095   Some sort of recommended (as opposed to mandatory)
        training program for specific series (0855,
        0346). Training is so haphazard at NAC - it
        seems to consist of just someone wanting a
        course and having enough people to back him/her
        up. A perfect example is the Anacostia
        Logistics Series. After a review of these, I
        really felt like I should have taken some
        before others. The only way I find out about

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things like this is strictly word of
mouth. Maybe if training worked on something
like this, they may see some of the holes I've
described in this survey that they need to
fill.

Another improvement would be for NAC to make an
investment in its future by devoting more
dollars to training. I was told by my
department director that NAC had very little
money left for training and nothing was going
to be done about it. If implemented correctly,
training can get an employee out of the office
for a week, learn something, and maybe
encourage that employee to stay.

Finally, I'd recommend that the training department
continue using the IDP as a basis for trainee
and training selection. This may keep some
people who don't belong in some classes (i.e.,
just want to get away for a week) out and
encourages the employee to think about what
he/she wants to do with his/her career. I know
in my division requests for IDPs are generally
ignored, if the branch managers reqest them at
all.

097   More visible and better <u>organized</u> way of handling
       the process.

100   Get department discrimination or employee
       preference out of the way. Management should
       have a better attitude and respect toward
       individuals that have made a choice to stay
       technical instead toward management career
       path.

101   1. Have a "learning lab" where people can use a
           VCR, a small monitor, and headphones to watch
           specific tapes. Encourage individual study.
       2. If someone is turned down for a class let them
           know when the next will be offered. Presently
           we are asked to indicate an interest, the list
           is sent away and we may never hear anything
           again.

103   Throw in some fun & interesting classes now & then.

104   Needs to be more technical - less management - more
       openly publicized. Used to have the
       Professional Development Committee - that was
       a better way to get info.

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105   More training is needed in "knowing the inner
        workings" here at NAC. I have had other young
        engineers under me that "you have to lead them
        through each step". More is being done to
        educate them, but they usually have to do it to
        "learn it". Sometimes they get the run-around
        because they don't know what to do.

106   Provide funding for larger courses such as PMI & II
        at DSMC outside of Division training funds.

107   1. Much too passive - they should actively work to
            help me.
        2. When I apply for a class to me Yes or No and if
            No, why? How or what can I do to be included?
        3. Too remote, I work through at least one person
            who works with them through electronic mail.
        4. Better prepared offerings - what it does when
            its available who would benefit.

108   Get rid of stupid courses that waste your time like
        "Shop Tour" and "How to do Business with
        D/200". Don't make any courses mandatory, but
        provide guidance so that people know what
        courses are available and can make intelligent
        decisions about what courses are applicable to
        their job situation and personal development.

110   Get the work out more effectively. OA has helped,
        but many times don't get word until too late to
        plan for, especially out-of-town training.

111   It seems as tho there is little relationship
        between the desire (or need) for courses and
        the amount of $ available. It is discouraging
        to keep putting courses down on an IDP and
        (seldom) being allowed to attend. IDPs are
        never looked at during the year.

112   Be sure people are <u>not</u> taking courses which will
        have no benefit to NAC and the individual.
        This is not to be "vacation time", and I have
        the feeling that many people have this feeling,
        and are abusing the system!

113   Prepare well ahead of time with good information or
        content. Look to future needs of individuals
        and NAC.

114   Provide feedback on other people's comments
        regarding courses.

115   Follow-up questionnaires 3 to 6 months following
       training.

116   Evaluate training background of individual.
       Determine the new goals of individuals.
       Discuss with individual how to improve his
       skills (technical or administrative). Publish
       a training plan.

119   Everyone should have a training budget to be
       expended by everyone individually.

120   There should be a more structured way to find out
       what courses are offered and by whom. Instead
       we fend for ourselves which is very
       unproductive and time consuming.
       I believe there should be a special counselors in
       the training department as well as our
       department who are aware of the needs of the
       software related community at NAC. These
       persons can help us structure our training
       plans to help us correct any deficiencies we
       may have.

122   Increase funding for training and give more
       incentive to take more classes.

124   Find a way to make known a variety of courses and
       where and when they take place. For example,
       in my subject area, Training/Personnel have no
       information (to my knowledge) of courses
       available. I have to try to get on mailing
       lists from organizations and universities to
       try to get the information myself. In general,
       approximately 98% of the training I've received
       has been based on courses I've found out about
       myself or through engineers in my division and
       then applied for.

125   Maybe there are some good classes out there, but
       nobody advertises them. You have to dig to
       find one. No one in personnel knows what's
       going on.

127   Let everyone know about it.

128   I think there should be a "template" or "cluster of
       courses" identified as <u>not</u> mandatory, but
       useful in helping to prepare individuals for
       promotion to branch manager, division director,
       project engineer, program manager, deputy

department director, department director, etc. Good Survey!

130   Realization that some of the best "training" can occur by attending conferences.

131   Since they've gone to our office automation, more people can see what courses are available. I think more definite assurance on the site is needed. Also, more "heads-up" notice is being implemented which they needed.

132   I'm not sure if a little less than a year is enough of a time frame to answer this but I think that the fact that training is offered is excellent. My only concern is that getting available training information may not be adequate.

134   Perhaps a data base is needed which provides information on courses such as topics covered, opinions from previous attendees, etc.

135   Develop better feedback and monitoring method. This survey was a bit long. You probably will see respondent apathy to the survey about half way through. Also, some of the question wording was leading. I felt somewhat required to give certain answers. Finally, I hope the analysis will not be just giving percents and having conclusions on those percent that are not consistent, i.e., stating 37% responded D and thats bad and later (on a different question) stating "67% responded at least at N and thats good."

136   Make training more available across departments and across the different professions. When certain courses are offered, one can often guess (accurately) who is going to be selected or nominated for the most desirable classes.

138   I would like to see branch managers become more involved in training & developing their employees. This would require that they be trained themselves. At the very least a "division trainer" should be in each division to teach employees how NAC works and how various systems that the division uses works.

140   Find a way to help people have the time to take the courses.

141   Maybe some training could be directed towards
        specific areas. That way we would not
        temporarily lose expertise when someone left or
        retired.

142   Offer counseling in career path evaluation. Person
        could pick specific courses to be taken at
        particular times. (much like a college
        curriculum).

143   Make the training funds more available for new
        employees. And offer the new employees an
        opportunity to train before they are thrown
        into work.

145   Have "electronically" (computer driven) system
        informing everyone the courses being offered
        and when. Also, have an outline developed for
        major job classification individuals would need
        to take, i.e., Project Management, Computer
        Sciences, Management, etc.

146   If NAC intends to really train its employees they
        must not do so just to fill in quota
        requirements by the managements but must
        seriously consider the true value of teaching
        and learning to benefit the manufacturing and
        welfare of this place and its people.

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